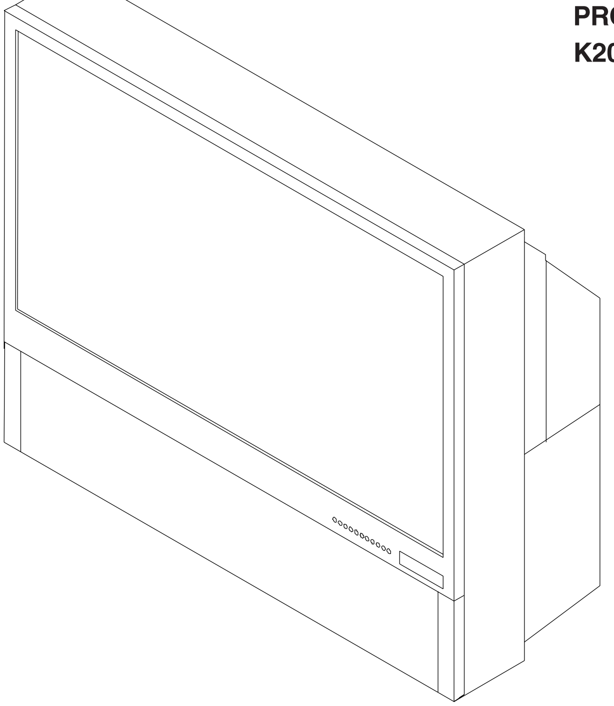
2003

MITSUBISHI ELECTRIC

Service Manual

PROJECTION TELEVISION
K20 CHASSIS



WT-42313
WT-42413

CAUTION:
Before servicing this chassis, it is important that the service person read the "SAFETY PRECAUTIONS" and "PRODUCT SAFETY NOTICE" contained in this manual.

SPECIFICATIONS

- **Power** : AC 120V, 60Hz
  240W
- **Frequency Range** : VHF 54 ~ 470MHz
  UHF 470 ~ 806MHz
- **Antenna Input** : VHF/UHF 75Ω unbalanced
- **CRT Size** : [7 inches]
- **High Voltage** : 32.0kV (at 0A)
- **Cabinet Demensions** : 39"(W)x34"(H)x25"(D)
- **Weight** : 105 lbs

- **Speaker** : Two 5" round, full range (8Ω 5W)
- **Input Level** : VIDEO IN JACK (RCA Type)
  1.0Vp-p 75Ω unbalanced
  : AUDIO IN JACK (RCA Type)
  -4.7dBm 43kΩ unbalanced
  : S-VIDEO IN JACK (Y/C separate)
  Y=1.0 Vp-p C=0.286Vp-p(BURST)
  75Ω unbalanced
  : COMP / Y, Cr, Cb (RCA Type)
  Y=1.0 Vp-p. Cr, Cb=700mVp-p
  : ATV / Y(G), Pr(R), Pb(B), H, V
  Y 1.0Vp-p with sync 75Ω (RCA Type)
  Pr, Pb: 700mV 75Ω
  H, V: 3.0Vp-p 75Ω
- **Digital Inputs** MonitorLink™/DVI
- **Output Level** : VIDEO OUT JACK (RCA Type)
  1.0Vp-p 75Ω unbalanced
  : AUDIO OUT JACK (RCA Type)
  -4.7dBm 4.7kΩ unbalanced

- Weight and dimensions shown are approximate.
- Design specifications are subject to change without notice.

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INTRODUCTION

This service manual provides service instructions for PTV Models WT-42313 and WT-42413 using the VK20 chassis. Service personnel should read this manual thoroughly before servicing this chassis.

This service manual includes:
1. Assembly and disassembly instructions for the front and rear cabinet components.
2. Servicing of the Lenticular Screen and Fresnel Lens.
3. Servicing printed circuit boards (PCBs).
4. CRT replacement procedure.
5. Electrical adjustments.
6. Chip parts replacement procedures.
7. Circuit path diagrams.

The parts list section of this service manual includes:
1. Cabinet and screen parts.
2. Electrical parts.

Schematic and block diagrams of the above listed models are included in this service manual for better understanding of the circuitry. PCB drawings are also included for easy location of parts and test points.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have special safety characteristics are identified in this service manual.

Electrical components having such features are identified by shading ▨ on the schematic diagram and by **bold type** in the parts list of this service manual. **The replacement for any safety part should be identical in value and characteristics.**

SAFETY PRECAUTIONS

NOTICE: Observe all cautions and safety related notes located inside the receiver cabinet and on the receiver chassis.

WARNING:

1. Operation of this receiver outside the cabinet or with the cover removed presents a shock hazard from the receiver's power supplies. Work on the receiver should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment.
2. Do not install, remove or handle the picture tubes in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while the picture tube is being handled. Keep the picture tube away from the body while handling.
3. When service is required, observe the original lead dress. Extra precaution should be taken to assure correct lead dress in the high voltage area. Where a short-circuit has occurred, replace those components that indicate evidence of overheating.

X-Radiation warning

The surface of the cathode ray tubes (CRTs) may generate X-Radiation, so take proper precautions when servicing. It is recommended that a lead apron be used for shielding while handling the CRT. Use this method if possible.

When replacing the CRTs, use only the designated replacement part since it is a critical component with regard to X-Radiation. High voltage must be set as prescribed under the section titled Electrical Adjustments.

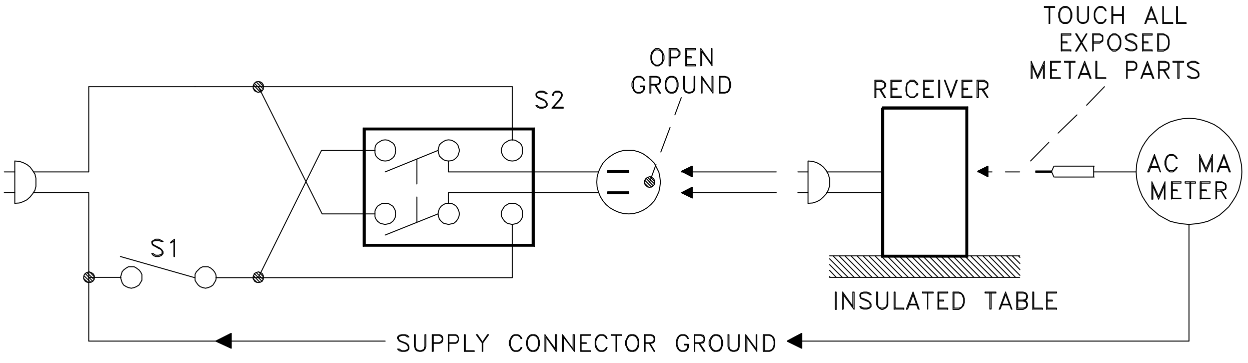
Leakage current check

Before returning the receiver to the customer, it is recommended that leakage current be measured according to the following methods.

1. *Cold Check*

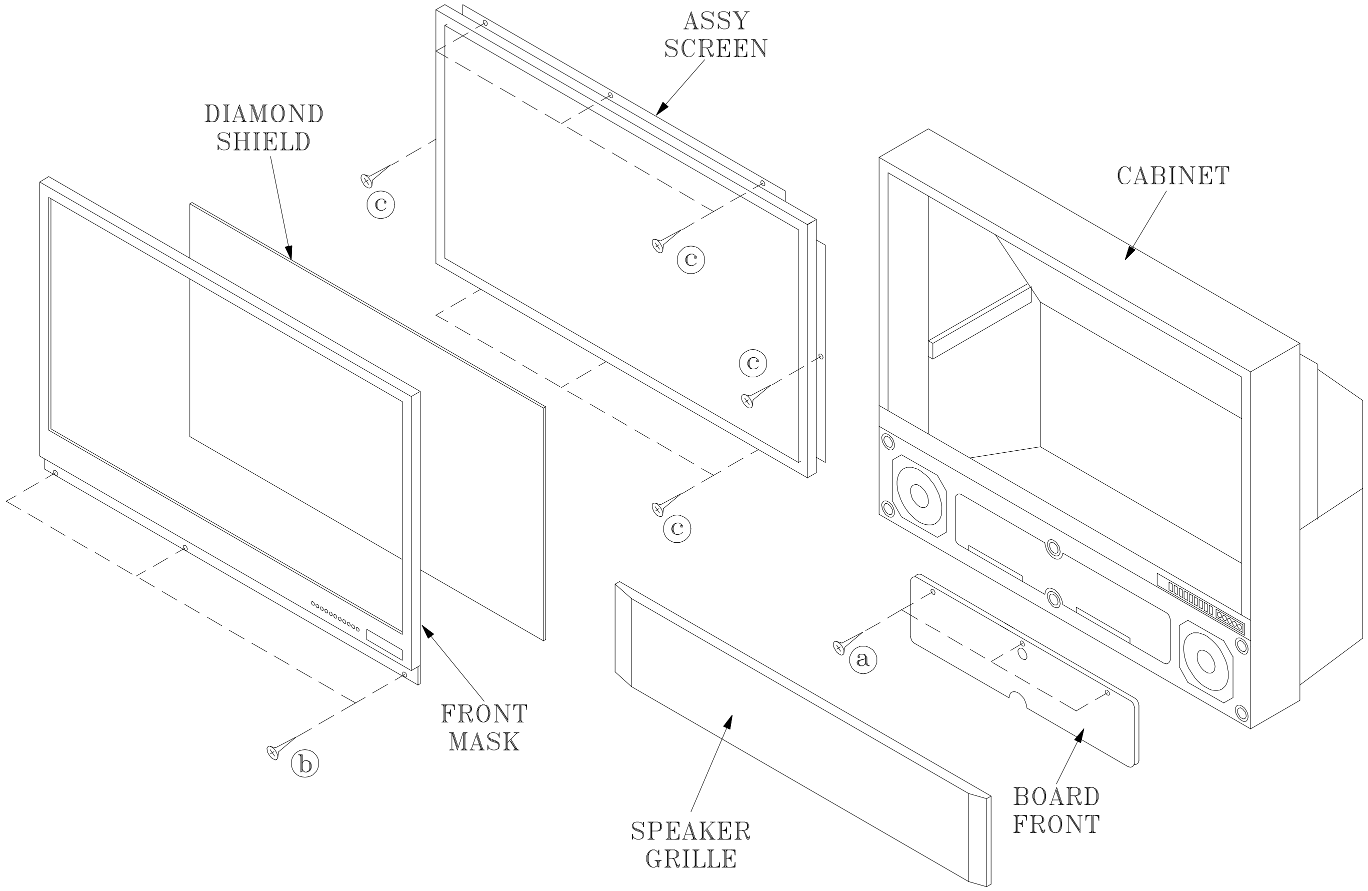
   With the alternating current (AC) plug removed from the AC source, place a jumper across the two AC plug prongs. Connect one lead of an ohm meter to the AC plug and touch the other lead to each exposed metal part (i.e. antennas, handle bracket, metal cabinet, screw heads, metal overlay, control shafts, etc.), particularly any exposed metal part that has a return path to the chassis. The resistance of the exposed metal parts having a return path to the chassis **should be a minimum of 1Mega Ohm**. Any resistance below this value indicates an abnormal condition and requires corrective action.

2. *Hot Check ...Use the circuit shown below to perform the hot check test.*
   1. Keep switch S1 open and connect the receiver to the measuring circuit. Immediately after connection, and with the switching devices of the receiver in their operating positions, measure the leakage current for both positions of switch S2.
   2. Close switch S1, energizing the receiver. Immediately after closing switch S1, and with the switching devices of the receiver in their operating positions, measure the leakage current for both positions of switch S2. Repeat the current measurements of items 1 and 2 after the receiver has reached thermal stabilization. **The leakage current must not exceed 0.5 milliampere (mA).**



CABINET DISASSEMBLY (FRONT VIEW)

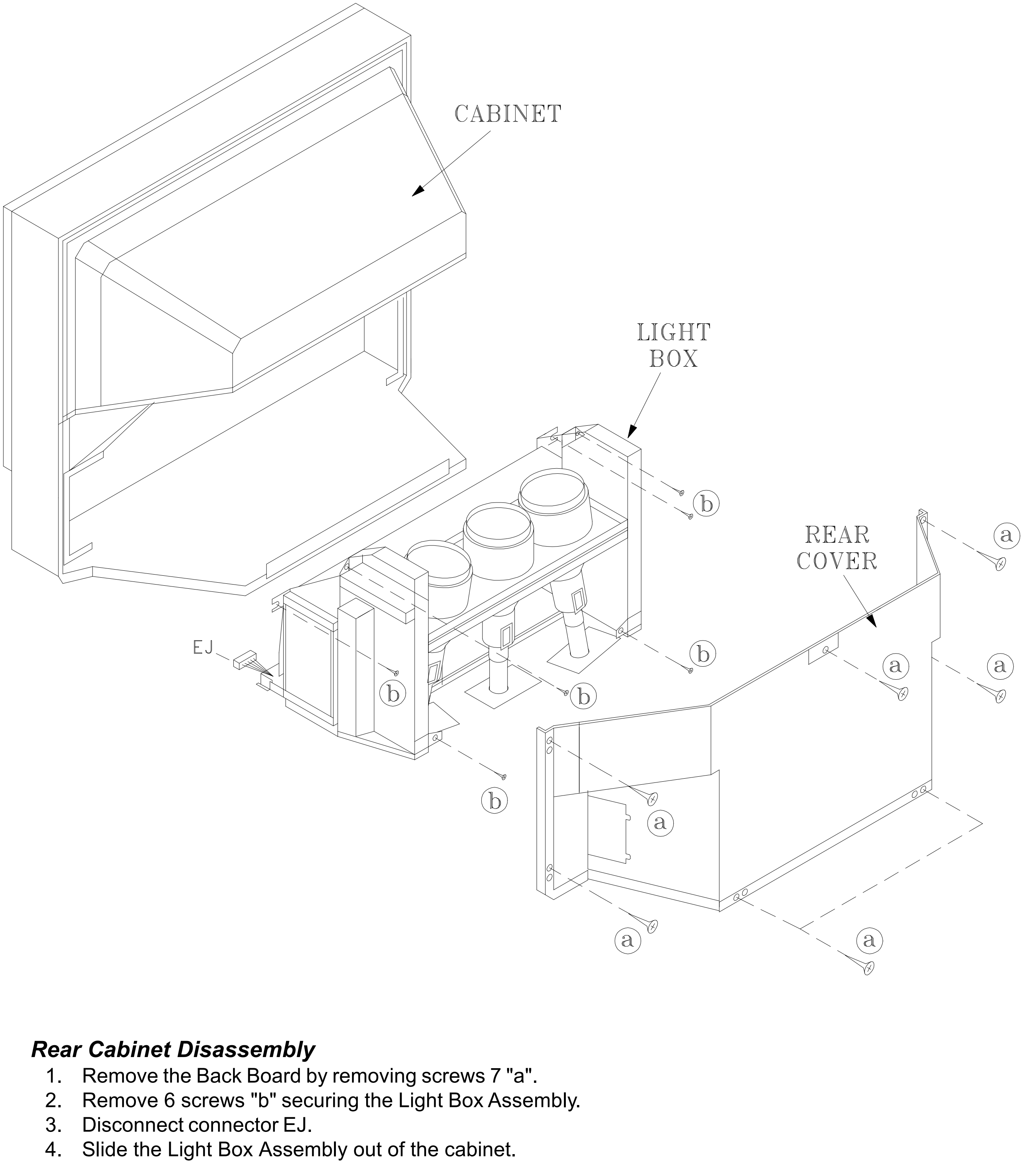
***Refer to PARTS LIST for Part Numbers**


ASSY
SCREEN
DIAMOND
SHIELD
CABINET
c
c
c
c
FRONT
MASK
b
a
SPEAKER
GRILLE
BOARD
FRONT

Front Cabinet Disassembly

1. Remove the Speaker Grille by pulling forward.
2. Remove the Board-Front by removing 3 screws "a".
3. Remove 3 screws “b” and then remove the Front Mask and Diamond Shield.
4. Remove 8 screws “c” and then the Assembly Screen.

CABINET DISASSEMBLY (REAR VIEW)


CABINET
LIGHT BOX
REAR COVER
EJ
a
b

Rear Cabinet Disassembly

1. Remove the Back Board by removing screws 7 "a".
2. Remove 6 screws "b" securing the Light Box Assembly.
3. Disconnect connector EJ.
4. Slide the Light Box Assembly out of the cabinet.

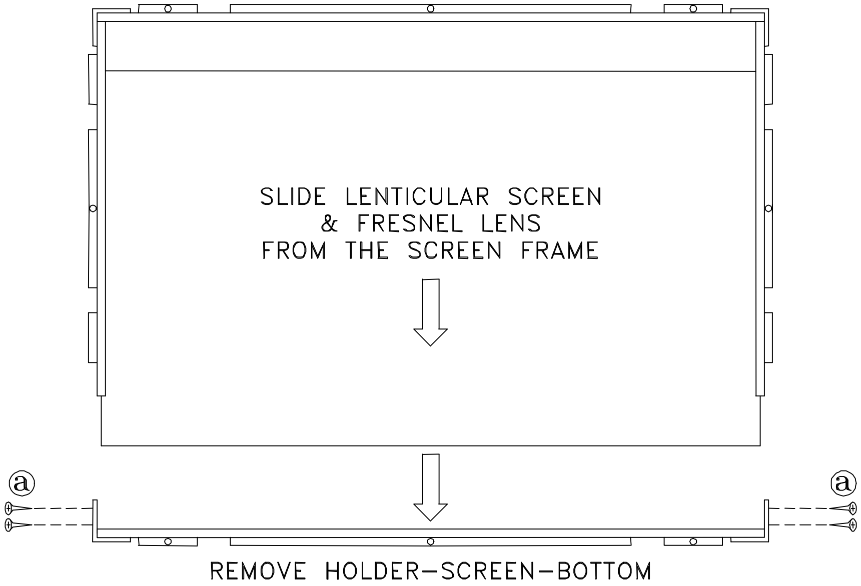
SERVICING THE LENTICULAR SCREEN AND FRESNEL LENS

CAUTION: **Wear gloves** when handling the Lenticular Screen and Fresnel Lens. This prevents cuts and finger prints. **Do not place Fresnel Lens in the sun**. This may cause fire and heat related injuries.

1. Lenticular Screen and Fresnel Lens Removal

1. Remove the screen assembly as shown in the Cabinet Front Disassembly procedure.
2. Remove screws “a” from the bottom Corner Brackets.
3. Remove the Holder-Screen-Bottom.
4. Slide the Lenticular Screen and Fresnel Lens from the Assembly Screen as shown below..

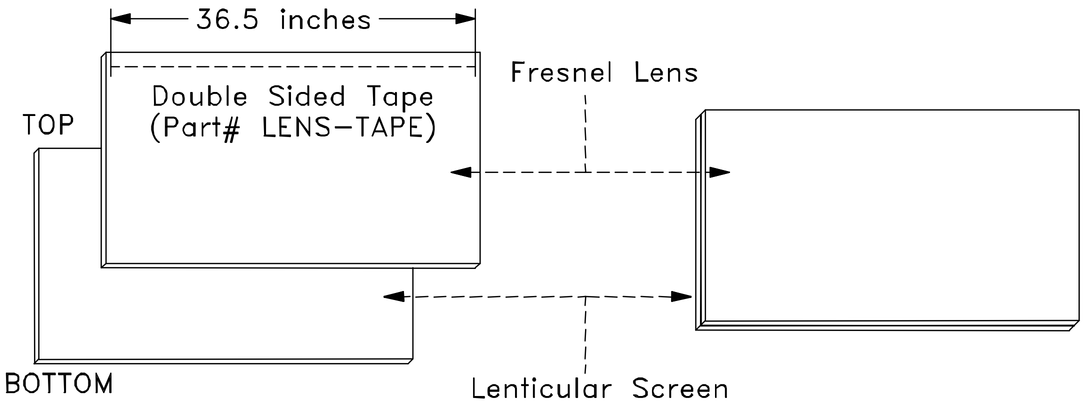
Note: When separating the Lenticular Screen from the Fresnel Lens, use caution while prying the Screen and Lens apart. Use a slot type screw drive, and remove the pressure sensitive double sided tape.


SLIDE LENTICULAR SCREEN
& FRESNEL LENS
FROM THE SCREEN FRAME
ⓐ
ⓐ
REMOVE HOLDER—SCREEN—BOTTOM

2. Installation of the Lenticular Screen and Fresnel Lens

Note: Store the Lenticular Screen and Fresnel Lens in a cool dry place. High humidity may deform the Lenticular Screen and Fresnel Lens.

1. Apply 36.5 inches of double sided tape (Part # LENS-TAPE) along the top front edge of the Fresnel Lens.
2. Place the Fresnel Lens on top of the Lenticular Screen and apply pressure at the top edge to bond them together as shown below.
3. Reverse the disassembly procedure to install the screens in the screen frame.


36.5 inches
Double Sided Tape
(Part# LENS—TAPE)
Fresnel Lens
TOP
BOTTOM
Lenticular Screen

SERVICING PCBs

Accessing The Main Chassis

In the VK20 chassis, the Main Chassis is located in front of the CRTs. Use the following procedure to access the Main Chassis.

1) Remove the Light Box Assembly, refer to the Cabinet Rear Disassembly.
2) The shelf in the front of the Light Box Assembly is removable, refer to Figure 1.
3) Release the shelf lock. Apply pressure to the shelf lip on the right side (downward and towards the front). Refer to Figure 2
4) Hold both sides of the shelf, pull forward and then upward to remove the shelf.

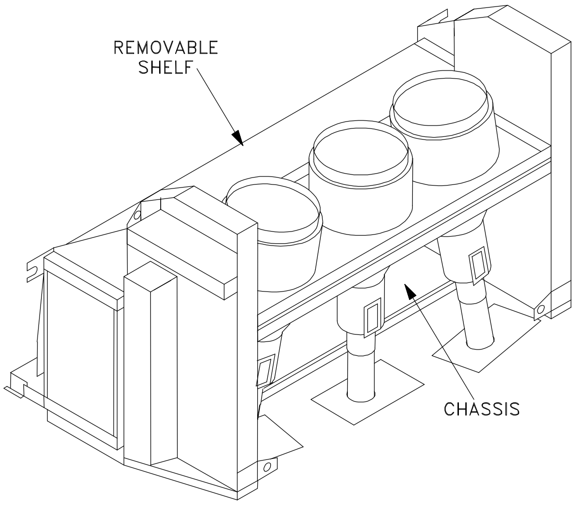

REMOVABLE SHELF
CHASSIS

Figure 1: Light Box Assembly

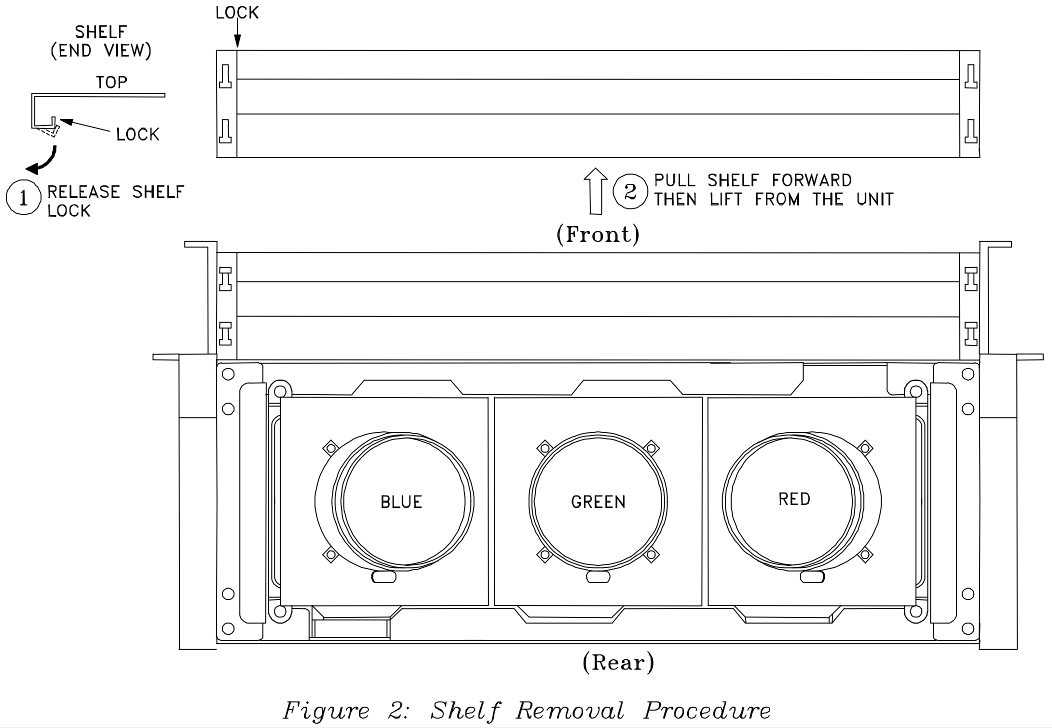
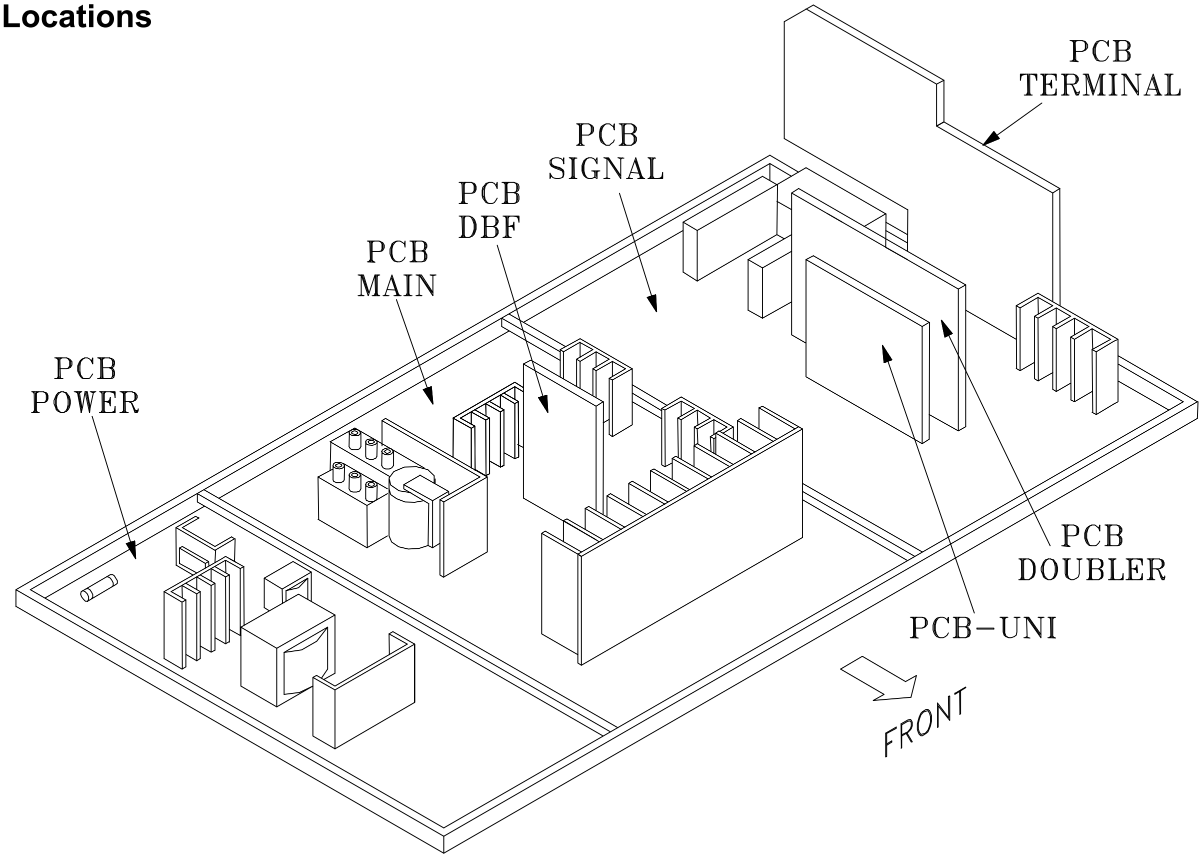
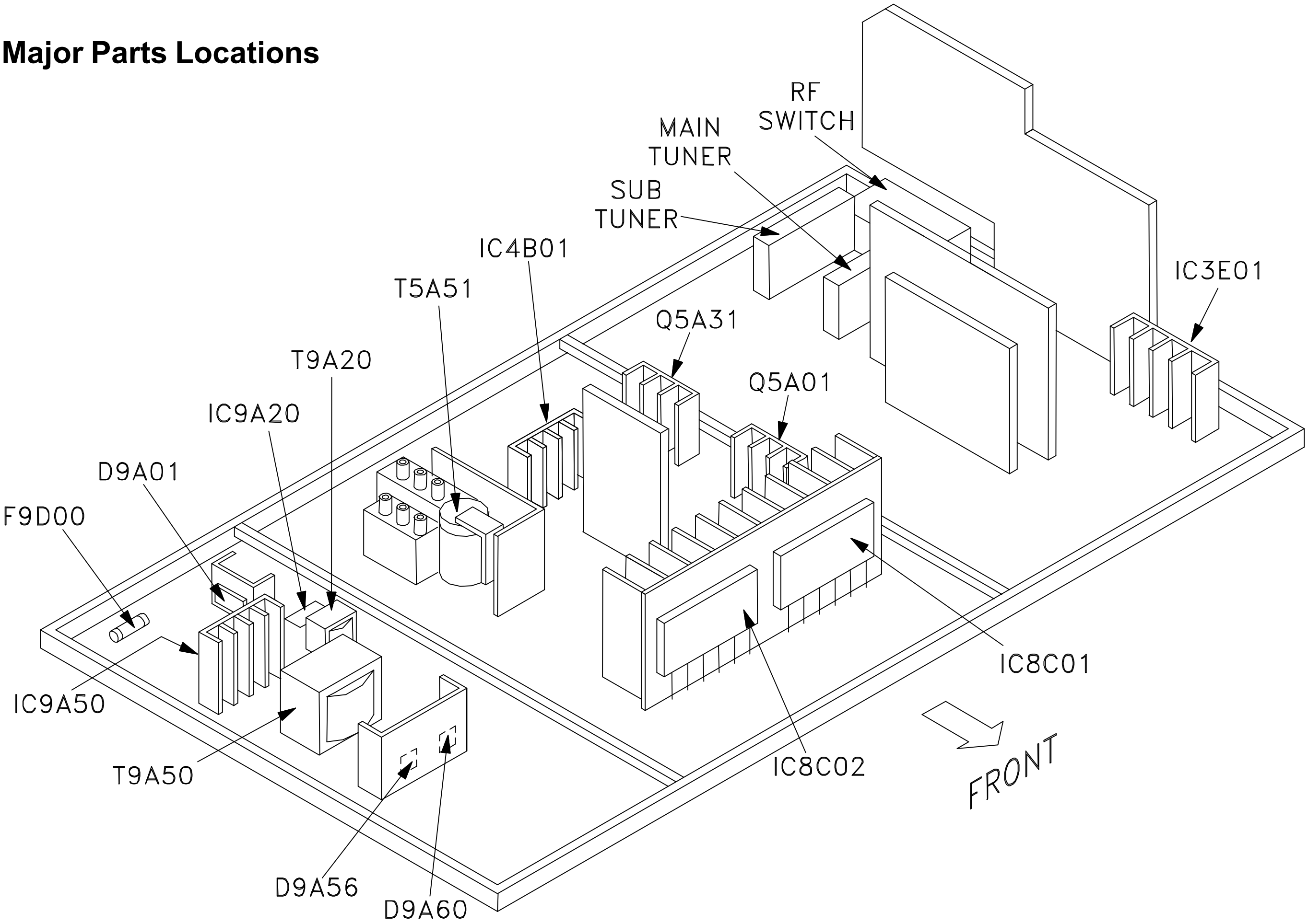

LOCK
SHELF (END VIEW)
TOP
LOCK
① RELEASE SHELF LOCK
② PULL SHELF FORWARD THEN LIFT FROM THE UNIT
(Front)
BLUE
GREEN
RED
(Rear)

Figure 2: Shelf Removal Procedure

PCB Locations


PCB TERMINAL
PCB SIGNAL
PCB DBF
PCB MAIN
PCB POWER
PCB DOUBLER
PCB-UNI
FRONT

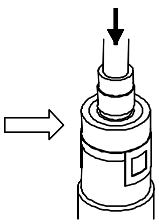
Major Parts Locations


RF SWITCH
MAIN TUNER
SUB TUNER
IC4B01
T5A51
Q5A31
IC3E01
T9A20
Q5A01
IC9A20
D9A01
F9D00
IC9A50
T9A50
IC8C01
IC8C02
FRONT
D9A56
D9A60

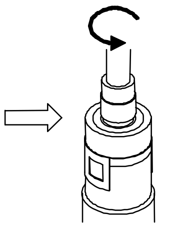
ANODE LEAD REMOVAL

CAUTION: To prevent damage, the following procedure must be used when removing an Anode Lead from the Flyback Transformer.

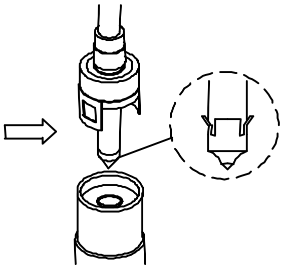
1) Push the Anode Lead down.



2) While holding the lead down rotate the lead 90º counter clockwise.



3) Carefully remove the Anode Lead from the Flyback Transformer.

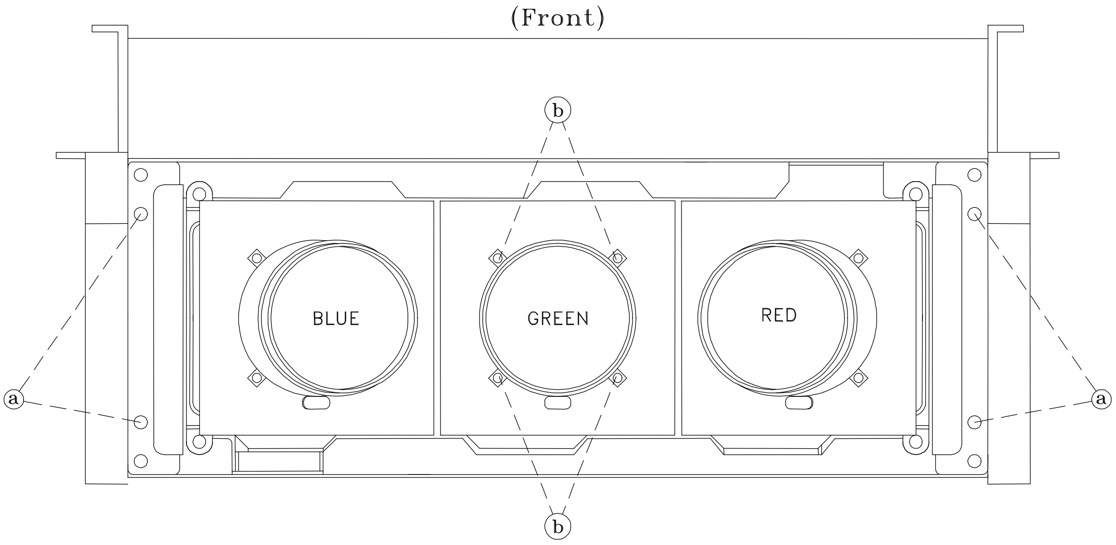


CRT REPLACEMENT

1. Removal of the CRT

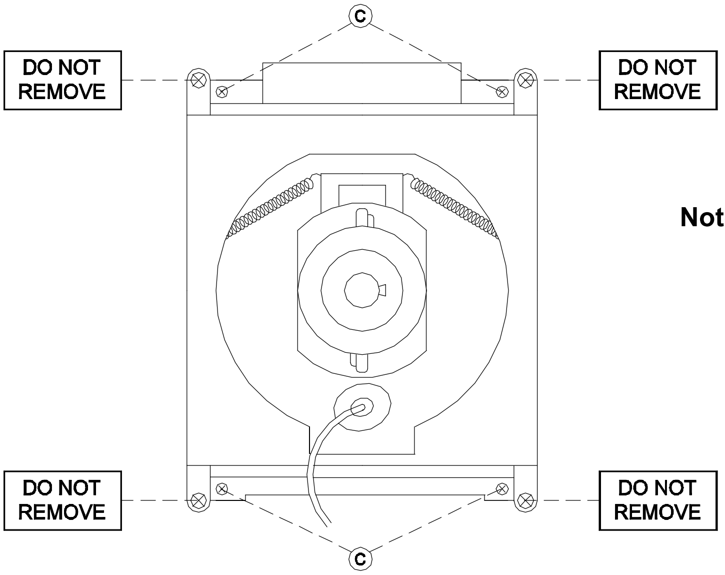
Caution! High voltage should be completely discharged prior to CRT removal.
Since the CRTs receive high voltage from the Flyback transformer, discharge the CRTs by shorting the open end of the respective high voltage cable to chassis ground.

1. Refer to Cabinet Disassembly and remove the Light Box Assembly.
2. Remove the three Anode Lead Wires from the Flyback transformer and discharge the CRTs. (Use the above procedure)
3. Unplug the three PCB-CRTs.
4. Remove 4 screws "a" retaining the Optical Unit. [Figure 1]
5. Remove 4 screws "b" retaining the Lens of the respective CRT
6. Lift the Optical Unit from the Light Box and set it lens down on a flat surface.
7. Remove 4 screws "c" retaining the CRT. [Figure 2]
   Note: **DO NOT loosen the spring loaded screws.** Doing so will break the seal between the C-Element and the # 6 Lens, causing leakage of the CRT Coolant.
8. Remove the Deflection Yoke from the neck of the CRT. [Figure 3]



LIGHT BOX (Top View)

Figure 1


C
DO NOT REMOVE
DO NOT REMOVE
DO NOT REMOVE
DO NOT REMOVE
C

Note: The 4 spring-loaded screws shown in Fig 2 and labeled as "DO NOT REMOVE", should not be loosened under any circumstance. Doing so will break the seal between the CRT and the CRT-Spacer, causing leakage of the CRT Coolant.

Figure 2

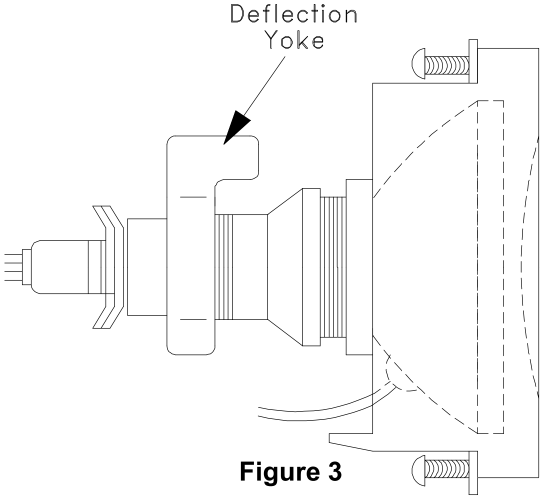

Deflection Yoke

Figure 3

2. Installation of the CRT

Note: The replacement CRT is supplied as an assembly comprised of the CRT and the Inner Lens with the space between them filled with ethylene glycol. Care should be taken during handling and installation to prevent shock from disrupting the seal or alignment between the CRT and Inner Lens. [Figure 4]

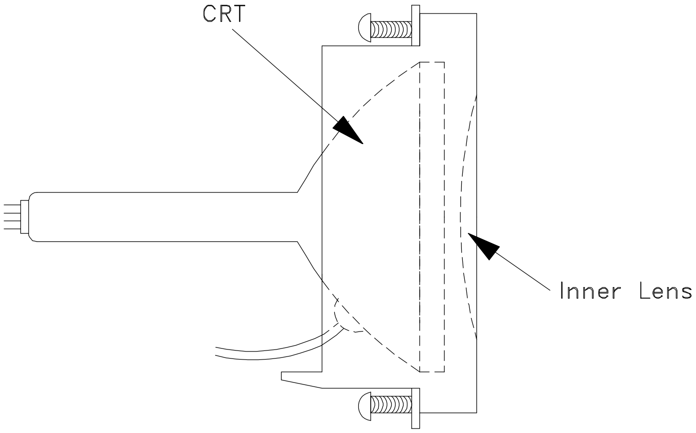

CRT
Inner Lens

Figure 4

1. Carefully position the replacement CRT and fasten in place using 4 screws "c". [Figure 2]
2. Install the Deflection Yoke on the CRT neck. [Figure 3]
3. Install the Lens that was removed in step 5 of Removal of the CRT.
    a) Position the Lens so that the Lens Adjustment Set Screw faces the rear of the TV [Figure 5].
    b) Install the Lens mounting screws "b". [Figure 1]
4. Insert the Optical Unit into the Light Box Assemblyand secure it with 4 screws "a" [Figure 1]..
5. Plug in the PCB-CRTs.
6. Insert the Anode Lead Wires into the Flyback Transformer.
7. Re-clamp the Lead Wire in its original position.

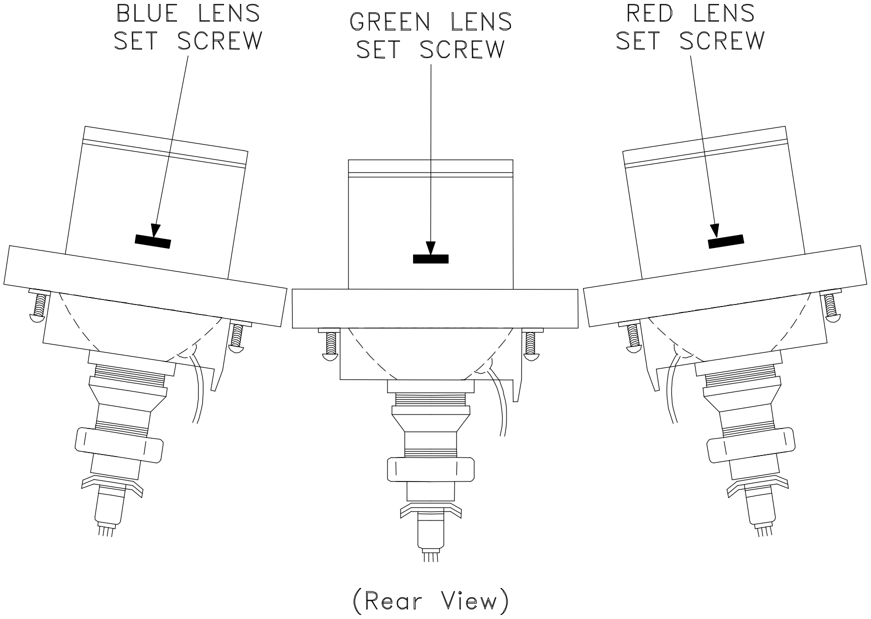


Figure 5

Adjustment procedures after replacing the CRT(s)

- CRT Cut Off / White Balance Adjustment
- Static Convergence Adjustment
- Dynamic Convergence Adjustment

ELECTRICAL ADJUSTMENTS

Note: Perform only the adjustments required.
Do not attempt an alignment if proper equipment is not available.

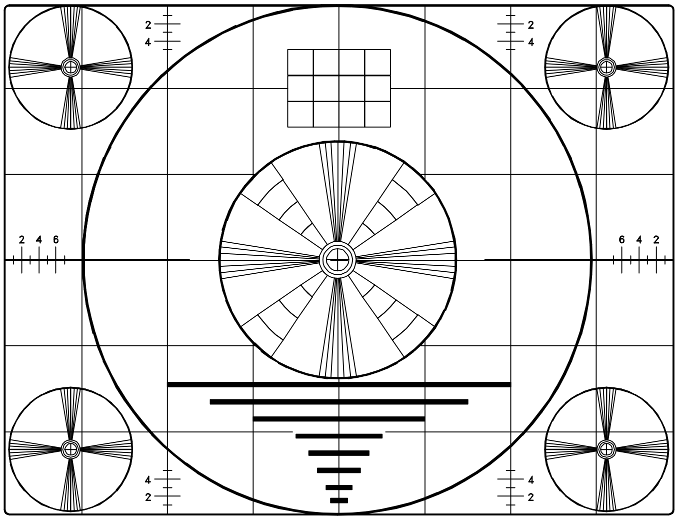
1. Test Equipment

- Oscilloscope (Unless otherwise specified, use 10:1 probes)
- Signal Generator (both SD and HD capable)
- Frequency Counter
- Direct Current Voltmeter
  Direct Current Power Supply
- Multiplex Audio Signal Generator
- Direct Current Ampere Meter

2. Test Signal

A. Monoscope Signal

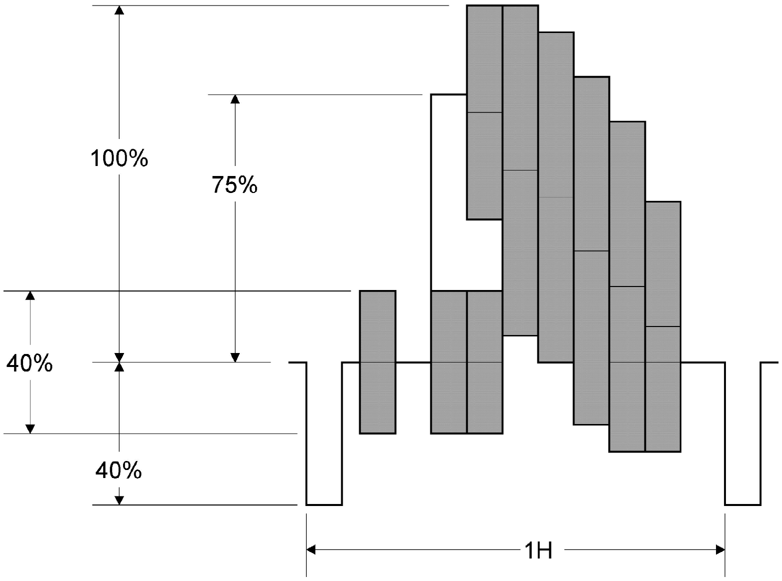
Note: If you do not have
a monoscope signal source,
connect the unit to a VCR
and play a Monoscope
*alignment tape.
(* Part Number: 859C568060)



Monoscope Signal

B. Color Bar Signal

Use the color bar signal shown
below, unless otherwise specified
in this manual.



Split-Field Color Bars (100% window)

3. Initial Setup

A. Option Menu Setup

Follow the steps below for the initial set-up:

1. Select the "MENU" display by pressing the "MENU" button once.
2. Press the number buttons "0", "3", "7", "0" in sequence to select the "OPTION MENU" display.
3. Press the "ADJUST" button to select "INITIAL."
4. Press "ENTER."

   NOTE: At this time channel 3 is automatically selected.

MENU-0-3-7-0

OPTION MENU	
Initial	
Power Restore	:OFF
DTV Port	:Auto

B. Default Settings

MAIN MENU DEFAULT SETTINGS

SETUP	
Memorize channels	ANT-A - Air
Language (idioma)	English
Front Button Lock	Off
INPUT ASSIGNMENT Menu	
Antenna A	On
Antenna B	On
DTV	YPrPb
Component	Component
Input-1	Input-1
Input-2	Input-2
Input-3	Input-3
MonLink	MonLink
CLOCK Menu	
Clock Setting	Manual
Time Zone	NA
Daylight Savings Time	NA
Clock Time	12:00pm
Set Day	Sunday
CAPTIONS Menu	
Closed Captions	On if Mute
CC Background	Gray
CHANNEL EDIT Menu	
Antenna	ANT-A
Channel	3
Memory	Deleted
Name	N/A
SQV	N/A
V-CHIP-LOCK Menu	
V-Chip	Off
TV Rating	TV-PG
FV- Fantasy Violence	Allow
D-Sexual Dialog	Allow
L-Adult Language	Allow
S-Sexual Situations	Allow
V-Violence	Allow
Movie Rating	PG
Programs Not Rated	Allow
V-CHIP LOCK By Time Menu	
V-Chip Start Time	12:00AM
V-Chip Stop Time	12:00AM
Lock by Time	Off
Lock Time	N/A
Unlock Time	N/A
ADVANCED FEATURES Menu	
Video Mute	On
Black Enhancement	On
TIMER Menu	
Timer	Off
Set Time	12:00PM
Set Day	Everyday
Device	Ant-A
Channel	3
COLOR BALANCE Menu	
Auto Color Correction	Off
PerfectColor™	
Magenta	Max
Red	Max
Yellow	Max
Green	Max
Cyan	Max
Blue	Max
AUDIO/VIDEO Menu	
A/V Memory Reset	Ant-A
TV Speakers (Internal)	On
Audio Output (TV Vol)	Variable
AUDIO SETTINGS	
TV Bass	50%
TV Treble	50%
TV Balance	50%
TV Surround	Off
TV Listen To	Stereo
TV Level Sound	Off
VIDEO SETTINGS	
TV Contrast	Max
TV Brightness	50%
TV Sharpness	50%
TV Color	50%
TV Tint	50%
TV Color Temp	High
TV Video Noise	Standard
TV Film Mode (Auto)	On
TV VSM Sharpness	On
TV Volume	30%
PIP Source	Ant-A Ch 3
PIP Position	Lower Right
POP Position	Right Half
Format	Stretch
PIP/POP Format	Side by Side

Items in the table below are set to following after Initalization.

AV Memory Initial Settings

A/V Memory	Ant-A Ant-B	DTV	NTSC 1/2/3	COMP	MonLink
TV Contrast	Max	Max	Max	Max	Max
TV Brightness	Center	Center	Center	Center	Center
TV Sharpness	Center	Center	Center	Center	Center
TV Color	Center	Center	Center	Center	Center
TV Tint	Center	Center	Center	Center	Center
TV Color Temp.	High	High	High	High	High
Video Noise	Standard	Standard	Standard	Standard	Standard
TV Image Type	Video	Video	Video	Video	Video
TV SVM Sharpness	On	On	On	On	On
TV Bass	Center	Center	Center	Center	Center
TV Treble	Center	Center	Center	Center	Center
TV Balance	Center	Center	Center	Center	Center
TV Surrond	Off	Off	Off	Off	Off
TV Listen To	Stereo	Stereo	Stereo	Stereo	NA
TV Level Sound	Off	Off	Off	Off	Off

4. LED Indicator Diagnostics

The “Power ON LED” provides an indication of the sets operation, and the possible cause of a malfunction.

A. Initial Control Circuitry Check

Immediately after the TV is connected to an AC power source:

- The LED flashes three times ... indicating the Microprocessor has initialized and is functioning properly.
- If the LED does not flash ... the Microprocessor is NOT functioning.

B. Error Code Operational Check

Note: The TV must be in “Shut Down” and not heve been switched Off, to perform the Error Code Operational Check. When the TV is switched Off, the code automatically resets to “12” No Error.

Pressing the front panel “INPUT” and “MENU” buttons at the same time, and holding for 5 seconds, activates the Error Code Mode. The LED flashes denoting a two digit Error Code, or indicating no problem has occured since the last Initalization.

Note: The front panel buttons must be used, NOT those on the Remote Control.

- The number of flashes indicates the value of the MSD (tens digit) of the Error Code.
- The flashing then pauses for approximately 1/2 second.
- The LED then flashes indicating the value of the LSD (ones digit) of the Error Code.
- The Error Code is repeated a total of 5 times.

Example: If the Error Code is “23”, the LED will flash two times, pause, and then flash three times.

C. Error Codes

The Error Code designations indicating a malfunction, or no malfunction, are listed below:

Error Code	Description
12	No error has occurred.
21	X-Ray Protect circuit.
22	Short Protect circuit.
23	Deflection Loss

5. Circuit Adjustment Mode

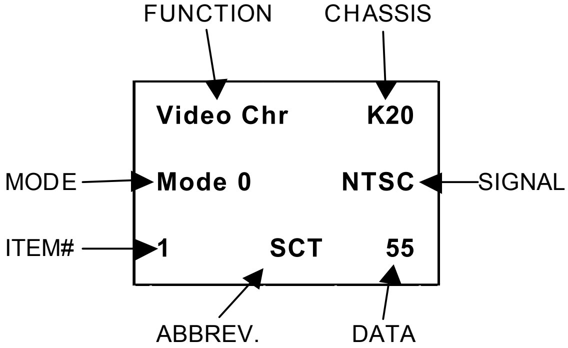
Except for the following, all adjustment items must be performed using the remote hand unit.

- Lens Focus
- Electrostatic Focus

A. Activating the Circuit Adjustment Mode

1. Press the "MENU" button on a remote hand unit.
2. Press the number buttons "0", "3", "5", "7" in sequence. The screen will change to the Adjustment Mode.

Note: Repeat steps 1 and 2 if the circuit adjustment mode display does not appear on screen

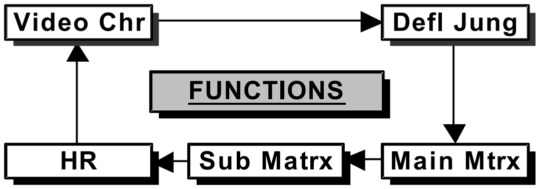

FUNCTION
CHASSIS
Video Chr
K20
MODE
Mode 0
NTSC
SIGNAL
ITEM#
1
SCT
55
ABBREV.
DATA

B. Selection of adjustment Functions and Adjustment Items

To select an adjustment item in the circuit adjustment mode, first select the adjustment function that includes the specific adjustment item to be selected. Then, select the adjustment item.

Refer to the following pages for the listing of adjustment functions and adjustment items.

1. Press the "AUDIO" button on a remote hand unit to select an adjustment function. Each time the button is pressed, the Function changes in the following sequence:

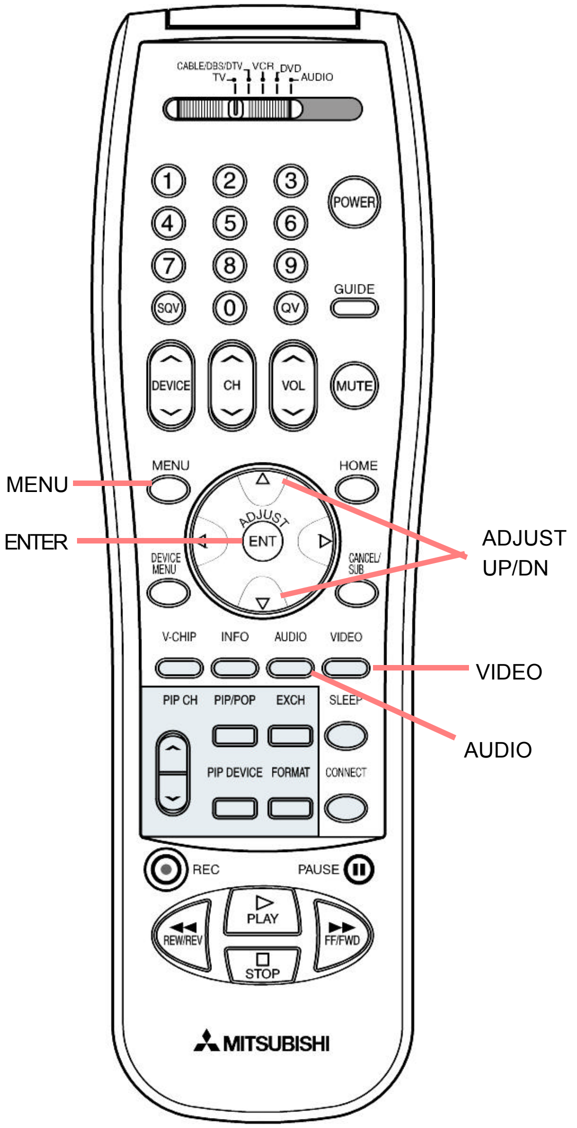

Video Chr
Defl Jung
FUNCTIONS
HR
Sub Matrx
Main Mtrx

2. Press the “VIDEO” button to select a specific Adjustment Item. The Item number increases each time the “VIDEO” button is pressed.

C. Changing Data

After selecting an adjustment Item, use the “ADJUST UP/DOWN” button to change data.

- Press “ADJUST DOWN” to decrease the data value.
- Press “ADJUST UP” to increase the data value.


MENU
ENTER
ADJUST UP/DN
VIDEO
AUDIO
CABLE/DBS/DTV
TV
VCR
DVD
AUDIO
POWER
GUIDE
SQV
QV
DEVICE
CH
VOL
MUTE
HOME
ADJUST
ENT
DEVICE MENU
CANCEL/SUB
V-CHIP
INFO
PIP CH
PIP/POP
EXCH
SLEEP
PIP DEVICE
FORMAT
CONNECT
REC
PAUSE
PLAY
REW/REV
FF/FWD
STOP
MITSUBISHI

D. Saving Adjustment Data

Press “ENTER” to save adjustment data in memory. The character display turns red for approximately one second in this step.

Note: If the circuit adjustment mode is terminated without pressing “ENTER”, changes in adjustment data are not saved.

E. Terminating the Circuit Adjustment Mode

Press the “MENU” button on the remote hand unit twice to terminate the adjustment mode.

Note: The circuit adjustment mode can also be terminated by turning power OFF.

F. Toggle Between Reception Modes

Pressing “3” when in the Adjustment Mode Video/Chroma Function toggles between 480i, 480p, and 1080i. However data changes are not automatically saved. **Press “ENTER” to save data before pressing “3”**.

G. Service Mode Reset

To reset items in the service mode to their factory values:

1. Press MENU-0-3-5-7 to enter the Service Mode.
2. Press the “INPUT” or “DEVICE” button, on the front panel or the remote, and hold for 2 seconds

6. Convergence Adjustment Mode

The Convergence mode is used to perform raster geometry correction, and convergence adjustments as specified in Adjustment Procedures 15 through 18.

A. Convergence Mode Activation

1. Press MENU-0-3-5-9
2. When the Convergence Mode is activated, the display at the right appears on a Green Crosshatch.

SD Coarse BLUE
1 HSTA -50

Coarse Conv. Display

B. Selecting the HD or SD Mode

1. **Select the Signal Source** before entering the Convergence Mode, either an NTSC or HD source.
2. **Enter the Convergence Mode** (MENU-0-3-5-9)
   - If the signal source is NTSC, the SD mode is activated.
   - If the signal source is HD 1080i, the HD mode is activated.
3. **Activating the HD mode when no HD signal is available.**
   - Activate the Factory Option Menu (MENU-0-3-7-0)
   - Use the “Adjust” keys to select “DTV Port” and press “Enter” to change the setting to “1080i”. Sequence = “Auto”-”480i”-480-p”-”1080i”. **Ignore any loss of sync while changing modes.**
   - Exit the Option Menu (Press “MENU” twice).
   - Select the DTV Inputs as the signal source (INPUT button).
   - Activate the Convergence Mode ... the Convergence mode will be in the HD mode and the internal crosshatch is displayed.
4. **After adjusting Convergence, be sure to set the DTV Port back to AUTO.**
   - Select an analog input as the signal source (INPUT button).
   - Activate the Option Menu (MENU-0-3-7-0).
   - Use the “Adjust” keys to select “DTV Port and press “Enter” to change the setting from “1080i” to “AUTO”.
   - Exit the Option Menu (Press MENU twice).

C. Convergence Mode Functions

In the Convergence Mode there are three main Functions (Categories).

- Pressing “6” activates CONV MISC
- Pressing “5” activates COARSE CONV
- Pressing “4” activates FINE CONV

D. CONV MISC (Press 6)

This mode is used to preset data values controlling the Convergence Generator, and to perform the HV Regulation adjustment.

1. Use the VIDEO button to select an item.
2. Use the ADJUST buttons to change data.

Note: When Item “1 HVOL” is selected the screen goes black except for the data display. This occurs since a black screen is required when making the HV Regulation adjustment.

E. COARSE CONV (Press 5)

There are four Sub Functions in the Coarse mode, COARSE GREEN, COARSE RED, COARSE BLUE and DF.

- COARSE GREEN .... used to make Coarse Raster Geometry Adjustments.
- COARSE RED ... used to make Coarse Red Convergence Adjustments.
- COARSE BLUE ... used to make Coarse Blue Convergence Adjustments.
- DF ... used to preset data values controlling the Dynamic Beam Focus circuit drive signal.

1. Use AUDIO button to select a Sub Function
2. Use the VIDEO button to select an Adjustment Item.
3. Use the ADJUST buttons to change data.

F. FINE CONV (Press 4)

Sub Functions

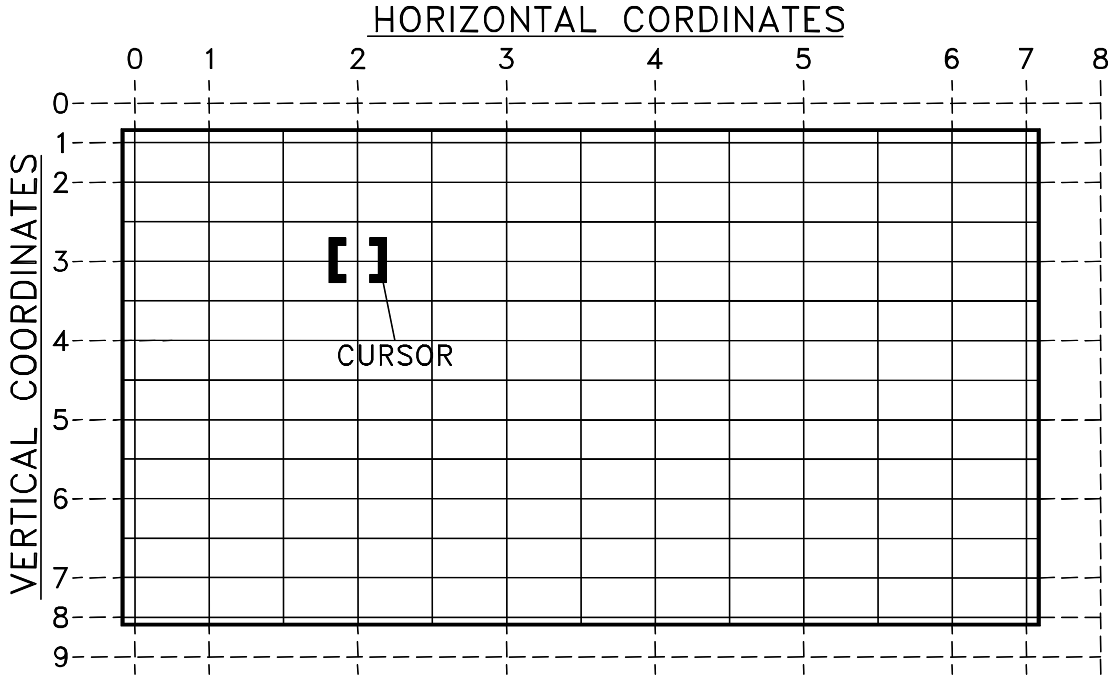
This mode is used to perform Fine Raster Correction, and Fine Red and Blue Convergence Adjustments. There are three Sub Adjustment Functions, selected with the AUDIO button:

- FINE GREEN .... a Green Crosshatch is displayed, for Fine Raster Corrections.
- FINE RED .... a White Crosshatch is displayed, for Fine Red Convergence Adjustments.
- FINE BLUE .... a White Crosshatch is displayed, for Fine Blue Convergence Adjustments.

Cursor

In the Fine mode a Cursor is added to the Crosshatch. The ENTER button toggles the Cursor between two modes:

- MOVE (blinking Cursor) .... use the ADJUST buttons to select any of 64 points on the Crosshatch.
- ADJUST (Non blinking Cursor) .... the ADJUST buttons adjust the active color at the current Cursor position, horizontally or vertically.

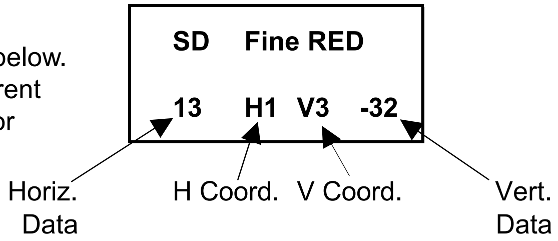


Cursor Coordinates

Specific intersections in the Crosshatch are assigned vertical and horizontal coordinates. These are shown in the preceeding diagram. The Cursor can only be moved to those positions that have coordinates assigned. If the Cursor is at coordinates outside the screen area, the Cursor will not be visible. Use the ADJUST buttons to move the Cursor to an intersection on the screen.

Display

The on-screen display changes in the Fine mode, as shown below. The display shows the vertical and horizontal data for the current Cursor Position, and the horizontal and vertical coordinates for that position.



F. Saving Data and Exiting the Convergence Mode

Press MENU twice to exit the Convergence mode, data is automatically saved.

Note: If power is interrupted prior to properly exiting the Convergence Mode, changes in adjustment data will not be saved.

ADJUSTMENT ITEMS LIST

Video Chroma Function **Menu-0-3-5-7**

			Data				
Item#	**Abbrev.**	**Description**	**Range**	**480i**	**480p**	**1080i**	**Adjustment**
1	SCT	Picture Gain control	0~63	31	31	31	Sub Contrast
2	SBRT	Sub Brightness	0~63	31	31	31	Black Level
3	SCON	Sub Contrast	0~15	0	0	0	Preset
4	RDRH	R Drive (H temp)	0~63	31	31	31	White Balance
5	GDRH	G Drive (H temp)	0~63	41	41	41	Preset
6	BDRH	B Drive (H temp)	0~63	31	31	31	White Balance
7	CTRH	R Cutoff (H temp)	0~63	31	31	31	"
8	CTGH	G Cutoff (H temp)	0~63	46	46	46	Preset
9	CTBH	B Cutoff (H temp)	0~63	31	31	31	White Balance
10	RDRL	R Drive (L temp)	0~63	31	31	31	"
11	GDRL	G Drive (L temp)	0~63	41	41	41	Preset
12	BDRL	B Drive (L temp)	0~63	31	31	31	White Balance
13	CTRL	R Cutoff (L temp)	0~63	31	31	31	"
14	CTGL	G Cutoff (L temp)	0~63	55	55	55	Preset
15	CTBL	B Cutoff (L temp)	0~63	31	31	31	White Balance
16	GMMA	RGB Gamma Correction	0~3	1	1	1	Preset
17	GAML	Gamma Differential Corr. Switch	0~1	0	0	0	"
18	BRT	Brightness	0~63	31	31	31	"
19	COL	Color	0~63	35	31	31	White Balance
20	TINT	Tint	0~63	28	31	31	Preset
21	SHRP	Sharpness	0~63	31	33	31	"
22	CBOF	Cb DC Offset	0~63	31	31	31	"
23	CROF	Cr DC Offset	0~63	31	31	31	"
31	VMLE	VM Output Level	0~3	2	2	1	"
40	AGIW	White output aging mode switch	0~1	0	0	0	"
55	ABLT	Threshold Adjust for ABL input	0~15	7	7	7	"

Deflection Jungle			Menu-0-3-5-7		
Item#	Abbrev.	Description	Range	HD	Others
1	HWID	Width	0~63	13	17
2	HKEY	Horiz. Keystone	0~63	9	3
7	VHGT	Height	0~63	18	36
8	VLIN	Vert. Linearity	0~15	8	6
9	VSCN	Vert. S Corr.	0~15	0	0
18	VPOS	Vert. Position	0~63	31	31
36	PINA	Horiz. PC Corr.	0~63	31	31

MAIN MATRIX			MENU-0-3-5-7	
			Data	
Item#	Abbrev.	Description	Range	Initial
1	TNTM	Main Tint Control	0~63	30
2	COLM	Main Color Control	0~63	29
3	YDRM	Main Y Gain	0~63	12

SUB MATRIX			MENU-0-3-5-7	
			Data	
Item#	Abbrev.	Description	Range	Initial
1	TNTS	Sub Tint Control	0~63	28
2	COLS	Sub Color Control	0~63	19
3	YDRS	Sub Y Gain	0~63	9
4	VPDS	U signal DC Control	0~15	7
5	UPDS	V signal DC Control	0~15	7

HR			MENU-0-3-5-7
Item#	Abbrev.	Description	Initial
1	HR	NTSC Disp.Pos.	29
2	HRHD	HD Disp. Position	15

CONVERGENCE MODE ITEMS

CONV MISC.			MENU-0-3-5-9-6		
			Data		
Item#	Abbrev.	Description	Range	SD	HD
1	HVOL	HV Adjust	0~352	150	150
2	VCNT	V-saw amplitude	0~127	29	29
3	VSTR	V-saw start timee	0~127	0	10
4	VOFS	V-saw offset	0~127	10	8
5	STLN	Start line	0~127	38	26
6	FPHS	Fine phase	0~352	310	296
7	CPHS	Coarse phase	0~31	15	15
8	HOFS	H-saw offset	0~127	22	22
9	DPHS	DF coarse horiz phase	0~31	1	1
10	DOFS	DF offset	0~127	40	30
11	TPHS	Test Pattern phase	0~352	45	38
12	TPVD	Test Pattern Vert. Position	0~127	22	39
13	ODEV	Odd/Even detection	0~352	200	125
14	HRTC	H-saw retrace	0~3	1	1
15	DRTC	DF retrace	0~3	1	1
16	DAC	External DAC selection	0~1	1	1
17	EPWP	EEPROM write protection	0~1	0	0

COARSE CONV GREEN (MENU-0-3-5-9-5)

#	Abbrev.	Description	SD	HD
1	HSTA	Horiz. Position	0	0
2	VSTA	Vert. Position	39	39
3	SKEW	Skew (Y axis)	0	0
4	TILT	Tilt (X axis)	0	0
5	HWID	Width	50	50
6	HLIN	Horiz. Linearity	0	0
7	SPCC	Side PC Corr.	20	0
8	HKEY	Horiz. Keystone	0	-20
9	TBPC	Top/Bottom PC	-180	-140
10	VKEY	Vert. Keystone	0	0
11	VWID	Height	11	20
12	VLIN	Vert. Linearity	-50	-50

COARSE CONV RED (MENU-0-3-5-9-5)

#	Abbrev.	Description	SD	HD
1	HSTA	Horiz. Position	50	50
2	VSTA	Vert. Position	0	0
3	SKEW	Skew (Y axis)	0	0
4	TILT	Tilt (X axis)	0	0
5	HLIN	Horiz. Linearity	-300	-250
6	HWID	Width	-20	0
7	VKEY	Vert. Keystone	-155	-190
8	VWID	Height	0	0
9	VLIN	Vert. Linearity	0	0
10	TBPC	Top/Bottom PC	70	100
11	SDBW	Side Bow	30	30

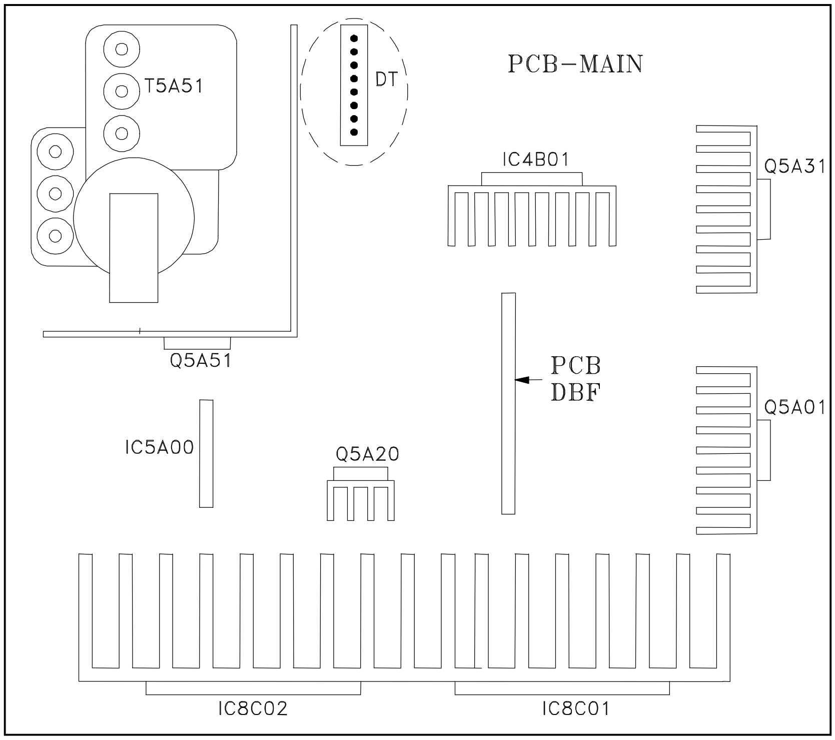
COARSE CONV BLUE (MENU-0-3-5-9-5)

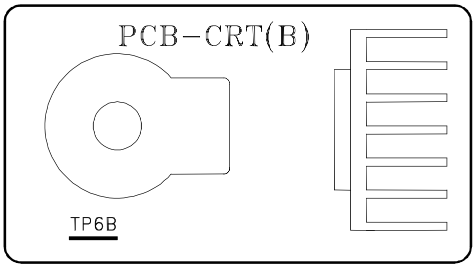
#	Abbrev.	Description	SD	HD
1	HSTA	Horiz. Position	-50	-50
2	VSTA	Vert. Position	0	0
3	SKEW	Skew (Y axis)	0	0
4	TILT	Tilt (X axis)	0	0
5	HLIN	Horiz. Linearity	300	250
6	HWID	Width	0	0
7	VKEY	Vert. Keystone	150	150
8	VWID	Height	0	0
9	VLIN	Vert. Linearity	0	0
10	TBPC	Top/Bottom PC	-30	0
11	SDBW	Side Bow	-30	0

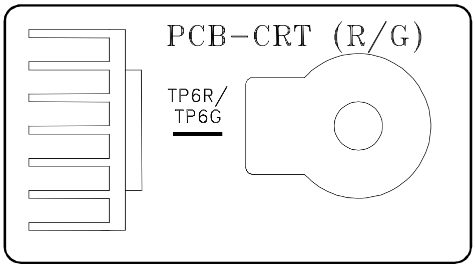
DF (MENU-0-3-5-9-5)

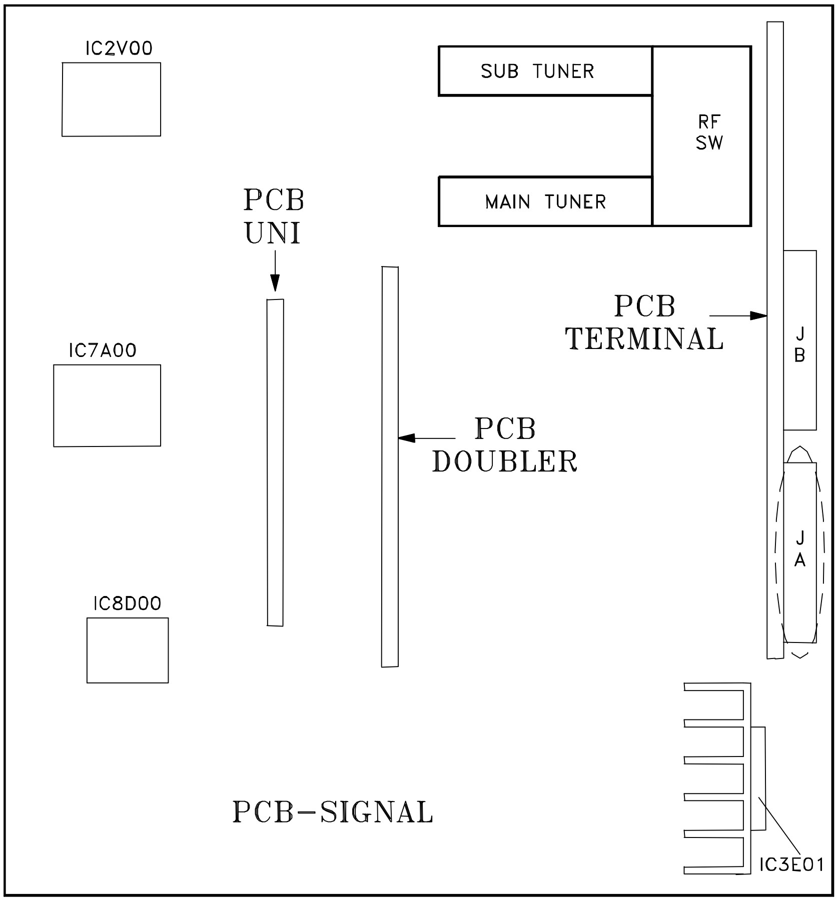
Item	Abbr.	Description	SD Data	HD Data
0	DFH	Dynamic Focus (Horizontal)	-255	-300
1	DFV	Dynamic Focus (Vertical)	-125	170

Adjustment Test Point Location


T5A51
DT
PCB-MAIN
IC4B01
Q5A31
Q5A51
PCB
DBF
Q5A01
IC5A00
Q5A20
IC8C02
IC8C01


PCB-CRT(B)
TP6B


PCB-CRT (R/G)
TP6R/
TP6G


IC2V00
SUB TUNER
RF
SW
MAIN TUNER
PCB
UNI
PCB
TERMINAL
J
B
IC7A00
PCB
DOUBLER
J
A
IC8D00
PCB-SIGNAL
IC3E01

Test Points

DT pin 3 - HV Adjust
DT pin 6 - Ground
DT pin 7 - 12 Volts
DT pin 8 - ACL
JA pin 14- Main Picture (Y)
JA pin 18 - Main Color (Cr)
JA pin 4 - Sub Picture (Y)
JA pin 8 - Sub Picture (Cr)
TP6(R, G or B) - CRT Cathode

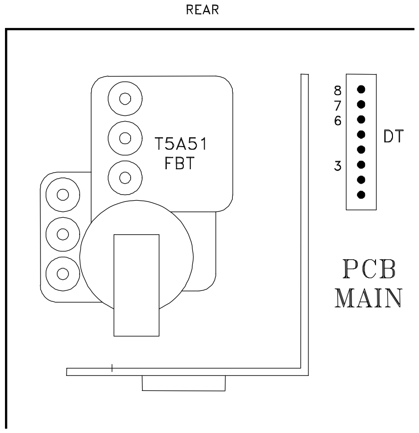
[HV Circuit]

1. HV Regulation

Purpose: To set the CRT Anode voltage.

Symptom: Dark Picture

Measuring Instrument	DC Voltmeter
Test Point	DT connector pins 3 & 6
Ext. Trigger	------
Measuring Range	-------
Input Signal	Video Signal Monoscope
Input Terminal	Video Input



Note: *This adjustment must be rechecked following Adjustment 9 CRT Cutoff.*

1. Supply a video monoscope signal.
2. Set Contrast to maximum, and Brightness to mid position.
3. Connect a DC volt meter between pins 3 and 6 of the DT connector. (Positive lead to pin 3)
4. Activate the Conv-Misc Mode.
5. Select Item “1 HVOL” (screen goes black).
6. Adjust Item “1 HVOL” for 15.4V ±0.05V on the meter.
7. Save data and exit the Conv-Misc mode.
8. Confirm that the voltage does not change more than 0.15V.

Note: *This adjustment must be performed if E2RESET or Convergence E2RESET are activated.*

CONVERGENCE MODE

Activate ……..MENU-0-3-5-9
Misc. ……………………."6"
Coarse…………………..."5"
Fine ……………………..."4"
Color (R,G or B)……AUDIO
Item No……………..VIDEO
Adjust/Move……….ADJUST
Cursor Toggle………ENTER
Save & Exit…..MENU (twice)

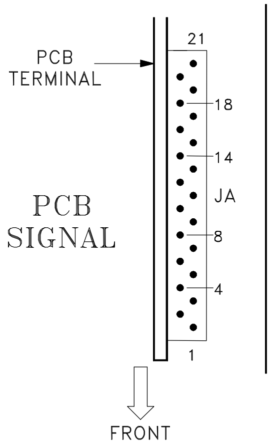
[Video Circuit]

2. Main/Sub Y Level

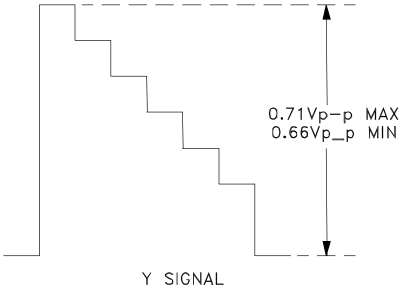
Purpose To set picture luminance

Symptom: Excess or insufficient brightness.

Measuring Instrument	Oscilloscope
Test Point	JA Connector pin 14 JA Connector pin 4
Ext. Trigger	------
Measuring Range	------ Color Bars
Input Signal	
Input Terminal	Video Input



1. Supply a color bar signal to a Video Input (not an RF input).
2. Select the color bar signal for both the main and sub pictures.
3. Connect the oscilloscope to connector JA pin 14 (Main-Y).
4. Activate the Adjustment Mode
5. Select Item “3 YDRM” in the Main Matrix function.
6. Adjust the data so the Main-Y signal is between 0.71 Vp-p max. and 0.66 Vp-p min. at JA pin 14. (If it cannot be adjusted within this range, set to the lower value)
7. Move the oscilloscope to connector JA pin 4 (Sub-Y). Activate PIP if the waveform is unstable.
8. Select Item “3 YDRS” in the Sub Matrix function.
9. Adjust the data to equal the MAIN-Y Gain (+0.0V -0.1V).



CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……….……VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit …………..MENU (twice)

[Video Circuit]

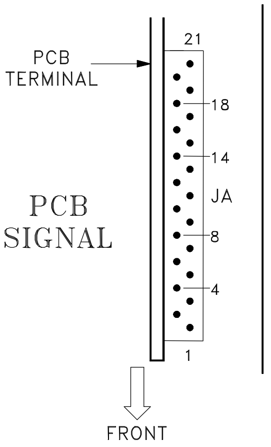
3. Main/Sub Color Level

Purpose: To match the sub picture color to that of the main picture.

Symptom: Main and sub pictures colors differ.

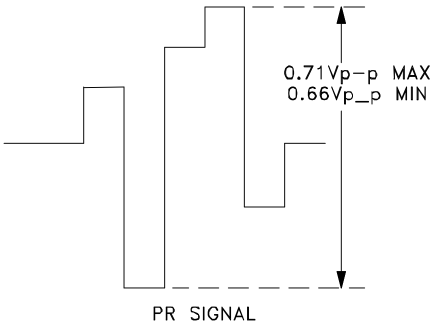
Measuring Instrument	Oscilloscope
Test Point	JA pin 18 JA pin 8
Ext. Trigger	------
Measuring Range	------
Input Signal	Color Bars
Input Terminal	Video

1. Supply an NTSC signal to an External Video Input.
2. Select the NTSC signal as the source for both the main and sub pictures.
3. Connect an oscilloscope to connector JA pin 18 (Main PR).
4. Activate the Adjustment mode.
5. Select Item "2 COLM" in the Main Matrix Function.
6. Adjust data so the PR signal is 0.71 Vp-p max. - 0.66 Vp-p min
   (If it cannot be adjusted within this range, set to the lower value)
7. Connect an oscilloscope to connector JA pin 8 (Sub PR). If the waveform is unstable, activate PIP.
8. Select item "2 COLS" in the Sub Matrix Function.
9. Adjust so Sub PR = Main PR.



CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……….…….VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit …………..MENU (twice)



[CRT Circuit]

4. CRT Cutoff

Purpose To set the cutoff point for all three CRTs.

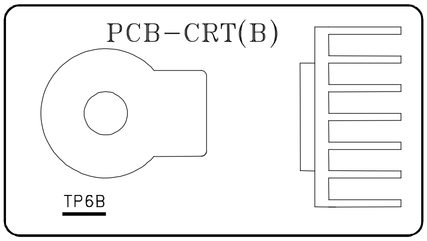
Symptom: Monochrome has a color tint, or incorrect brightness.

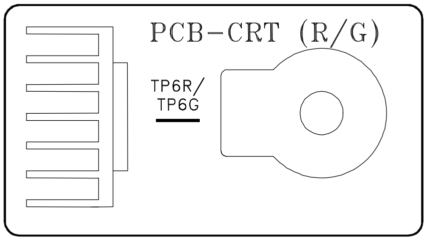
Measuring Instrument	Oscilloscope
Test Point	TP6R, TP6G, TP6B
Ext. Trigger	------
Measuring Range	50V/Div. 2msec/Div.
Input Signal	None
Input Terminal	Video Input

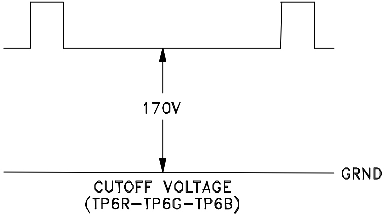
Note: ***Use the Expand mode (full screen)***

1. Select an External Input with no signal.
2. Enter the Adjustment Mode, Video Chroma Function.
3. Press "1", automatically blanks the screen and sets COL to 0.
   Note: If the screen goes blue, turn off Video Mute.
4. Set the data to the values given in the table below.
5. Connect the oscilloscope to TP6R.
6. Adjust the Red Screen VR so the black level is 170V, as shown below, or 176V ±1VDC using an DC Voltmeter.
7. Repeat Steps 4 and 5 to set the Blue and Green Screen VRs, using TP6G and TP6B.

Note: *White Balance must be performed after this adjustment.*







Cutoff Preset VC Data

Item	Abbr	Data
1	SCT	31
2	SBRT	31
3	SCON	0
4	RDRH	31
5	GDRH	41
6	BDRH	31
7	CTRH	31
8	CTGH	46
9	CTBH	31

CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……….…….VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit …………..MENU (twice)

[CRT Circuit]

5. White Balance (NTSC)

Purpose: To set the CRTs white level in the NTSC mode.

Symptom: Monochrome has a color tint.

Measuring Instrument	DC Voltmeter
Test Point	------
Ext. Trigger	------
Measuring Range	------
Input Signal	NTSC White Raster
Input Terminal	RF or Video

CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……….…….VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit ………….MENU (twice)

Note: ***Use the "FORMAT" button to activate the Expand mode (full screen).***

1. Supply a full White Raster Signal
2. Activate the Service Mode, Video Chroma Function.
3. Set the data for Item "19 COL" to 0.
4. Adjust Items "4 RDRH" and "6 BDRH" for optimum white at the center of the screen.
5. Reduce the input luminance level to 25%.
6. Adjust Items "7 CTRH" and "9 CTBH" for optimum white.
7. Insert a Milliammeter in series with each CRT Cathode. The maximum allowable current for each CRT is given in the table below.
8. Set the white raster to 100% and adjust Items "10 RDRL" and "12 BDRL" for optimum white at the center of the screen.
9. Reduce the luminance level to 25%.
10. Adjust Item "13 CTRL" and "15 CTBL" for optimum white.
11. Set the data for Item "19 COL" back to 31.

Maximum CRT Current

CRT	CURRENT
RED	580 uA
GREEN	580 uA
BLUE	580 uA

[CRT Circuit]

6. White Balance (HD)

Purpose To set the CRTs white level in the HD mode.

Symptom: Monchrome pictures have a color tint.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	HD White Raster
Input Terminal	DTV Inputs

CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……….…….VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit ………….MENU (twice)

1. Supply an HD Full White Raster signal to the DTV Inputs.
2. Select the DTV Inputs (Input button)
3. Activate the Adjustment mode, Video Chroma Function.
4. Set Item "19 COL" to 0.
5. Adjust Items "4 RDRH" and "6 BDRH" for optimum white at the center of the screen.
6. Reduce the input signal luminance to 25%.
7. Adjust Items "7 CTRH" and "9 CTBH" for optimum white.
8. Set the white raster to 100% and adjust Items "10 RDRL" and "12 BDRL" for optimum white at the center of the screen.
9. Reduce the luminance level to 25%.
10. Adjust Item "13 CTRL" and "15 CTBL" for optimum white.
11. Set the data for Item "19 COL" back to 31.

NOTE: *After completing HD White Balance, set the corresponding adjustment items in 480p to the same data values*

[Video Circuit]

7. Black Level

Purpose: To set the black level of the picture.

Symptom: Excess or insufficient brightness.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	Monoscope
Input Terminal	Video Input

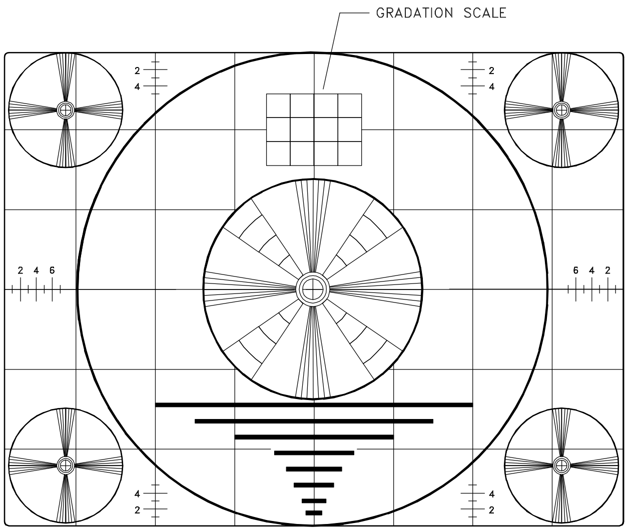
1. Supply a Monoscope signal to a Video Input.
2. Activate the Adjust Mode, Video Chroma Function.
3. Adjust Item “2 SBRT” so the 0% and 10% black levels on the gradation scale are the same. (SBRT data should fall between 19 and 25.)
4. Press ENTER to save data.
7. Exit the Service Mode.

CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……………..VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit …………..MENU (twice)

40%	30%	20%	10%
50%	0%	0%	0%
60%	70%	80%	90%

GRADATION SCALE



[Video Circuit]

8. Sub Contrast

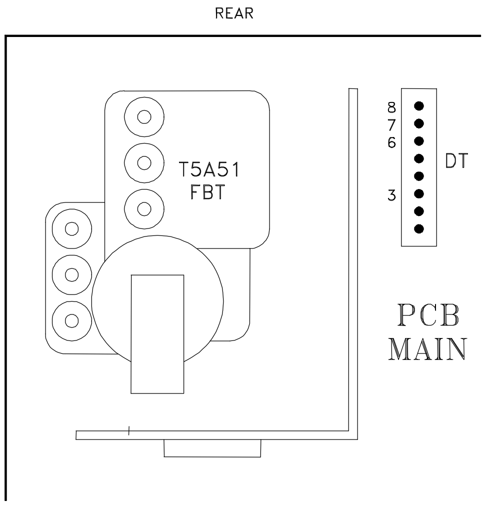
Purpose To set overall beam current to its’ optimum level.

Symptom: Excess or insufficient contrast.

Measuring Instrument	DC ma meter
Test Point	DT connector pins 7 & 8
Ext. Trigger	------
Measuring Range	-----
Input Signal	Grayscale
Input Terminal	RF Input

Note: Activate the Expand mode (full screen).

1. Supply a Grayscale signal to a RF Input.
2. Activate the Adjust Mode, Video Chroma Function.
3. Select Item “1 SCT”, signal level automatically reduces.
4. Connect a 3ma DC meter between DT connector pins 7 and 8. Positive lead to pin 7.
5. Adjust Item “1 SCT” for 440μA ±10μA .
6. Remove the meter.
7. Save data and Exit the Service Mode.



CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..………..AUDIO
Item No. ……………..VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit …………..MENU (twice)

[Focus Circuit]

9. Dynamic Focus Preset

Purpose: To improve edge focus.

Symptom: Poor focus at the edges of the screen.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	Monoscope
Input Terminal	Video Input

1. Supply a Monoscope signal to a Video Input
2. Activate the Convergence Mode.
3. Select the DF Function under the Conv. Coarse Mode.
4. Set Items “0 DFH” and “1 DFV” to the data values given in the DF Table.
5. Press “6” to activate CONV-MISC
6. Set “0 FPHS” and “1 DPHS” to data values given in the CONV-MISC Table.
5. Exit the Conv. Mode.

CONVERGENCE MODE

Activate ……..MENU-0-3-5-9
Misc. ……………………..…"6"
Coarse…………………..…"5"
Fine ……………………...."4"
Color (R,G or B)……AUDIO
Item No……………..…VIDEO
Adjust/Move……….ADJUST
Cursor Toggle………ENTER
Save & Exit…..MENU (twice)

DF (MENU-0-3-5-9-5)

Item	Abbr.	SD Data	HD Data
0	DFH	-255	-300
1	DFV	-125	-70

CONV MISC (MENU-0-3-5-9-6)

Item	Abbr.	SD Data	HD Data
9	DPHS	1	1
10	DOFS	40	30

[Video Circuit]

10. Lens Focus

Purpose To set the Lens position for optimum focus.

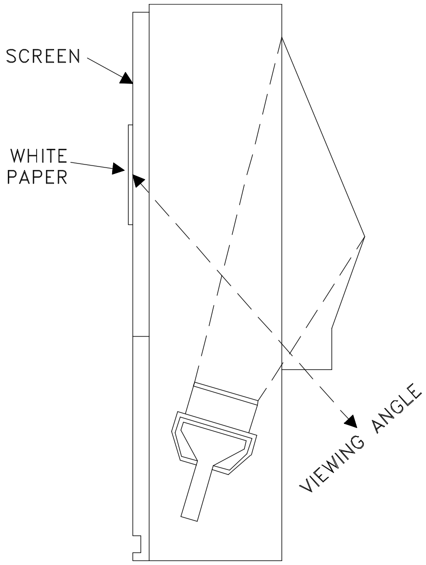
Symptom: Poor focus

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	Monoscope & Crosshatch
Input Terminal	Video Input

Note: *This adjustment must be done before Electrostatic Focus. Perform this adjustment for RED, GREEN, and BLUE monochrome pictures.*

1. Supply a VIDEO signal (Monoscope).
2. Cover the Red and Blue Lens (producing a green raster).
3. Adjust the Green Lens for best focus at the center of the Monoscope pattern.

   Note: *Attach a white paper to the screen center. During adjustment, observe the picture on the screen from inside for easier adjustment.*
4. Supply a crosshatch signal
5. Confirm that the width at the top and bottom of the center vertical line are the same. If not, check mechanical centering adjustment..
6. Repeat Steps 2 and 5 for the Red and Blue monochrome pictures.



[CRT Circuit]

11. Electrostatic Focus

Purpose: To set electrostatic focus to the optimum point.

Symptom: Poor focus.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	Monscope & Crosshatch
Input Terminal	Video Input

Note: *This adjustment must be performed after the Sub Contrast adjustment.*

Static Focus Adjustment

1. Supply a Monoscope signal to a Video Input
2. Activate A/V Reset
3. Select Red, Green or Blue rasters using the table below.
3. Set the Red, Green and Blue Focus VRs for optimum focus at the top center of the picture..

Raster Color Selection

Color Raster	Activation Code
Red	MENU-0-3-5-9-1
Green	MENU-0-3-5-9-2
Blue	MENU-0-3-5-9-3

[On Screen Display]

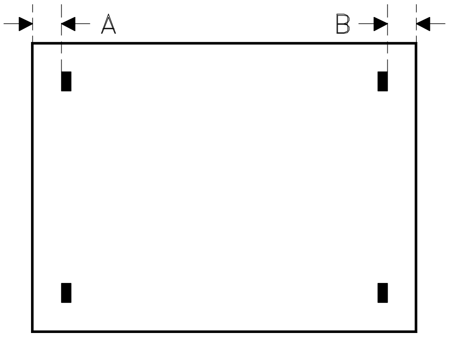
12.Character Position

Purpose To position the character display horizontally.

Symptom: Incorrect display position

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	------
Input Signal	Video Signal (HD/NTSC)
Input Terminal	ANT-A/DTV

1. Supply a Monoscope signal to the Video or RF Input.
2. Select the Monoscope as the source for the main picture (Input button).
3. Activate the Service Mode, HR Function.
4. Use the Adjust Right/Left buttons to center the display horizontally. (A = B)
5. Save data and exit the Service Mode..



[Conv/Defl] **13. Geometry Preset**	**Purpose:** To preset data controlling raster geometry **Symptom:** Raster distortion.

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC & HD
Input Terminal	Video & DTV Inputs

Note: *This procedure is usually only necessary if an E2PROM is replaced in the TV Control or Convergence circuits.*

Procedure

In the Circuit Adjustment and Coarse Convergence Modes pre-set the data to the values given in the Tables below.

DEFL JUNGLE
(MENU-0-3-5-7)

#	Abbrev.	HD	NTSC
1	HWID	13	17
2	HKEY	25	3
3	EWPT	31	31
7	VHGT	22	38
8	VLIN	3	6
9	VSCN	0	0
18	VPOS	31	31

COARSE CONV GREEN
(MENU-0-3-5-9-5)

#	Abbrev.	SD	HD
1	HSTA	0	0
2	VSTA	39	39
3	SKEW	0	0
4	TILT	0	0
5	HWID	50	50
6	HLIN	0	0
7	SPCC	20	0
8	HKEY	0	-2
9	TBPC	-180	-140
10	VKEY	0	0
11	VWID	30	40
12	VLIN	-50	-50

COARSE CONV RED
(MENU-0-3-5-9-5)

#	Abbrev.	SD	HD
1	HSTA	50	50
2	VSTA	0	0
3	SKEW	0	0
4	TILT	0	0
5	HLIN	-300	-250
6	HWID	-20	0
7	VKEY	-155	-190
8	VWID	0	0
9	VLIN	0	0
10	TBPC	70	100
11	SDBW	30	30

COARSE CONV BLUE
(MENU-0-3-5-9-5)

#	Abbrev.	SD	HD
1	HSTA	-50	-50
2	VSTA	0	0
3	SKEW	0	0
4	TILT	0	0
5	HLIN	300	250
6	HWID	0	0
7	VKEY	180	175
8	VWID	0	0
9	VLIN	0	0
10	TBPC	-30	0
11	SDBW	-30	-30

[Deflection Circuit]

14: Deflection Geometry Height & Width Adjustment

Purpose: To set the height, width and linearity of the raster.

Symptom: Incorrect height, width and/or linearity.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	Monoscope (NTSC & HD)
Input Terminal	Video & DTV Inputs

CIRCUIT ADJUST MODE

Activate …….. MENU-0-3-5-7
Function …..……….AUDIO
Item No. ……………..VIDEO
Adjust Data ……….ADJUST
Save Data …. ………ENTER
Exit …………..MENU (twice)

Preliminary:

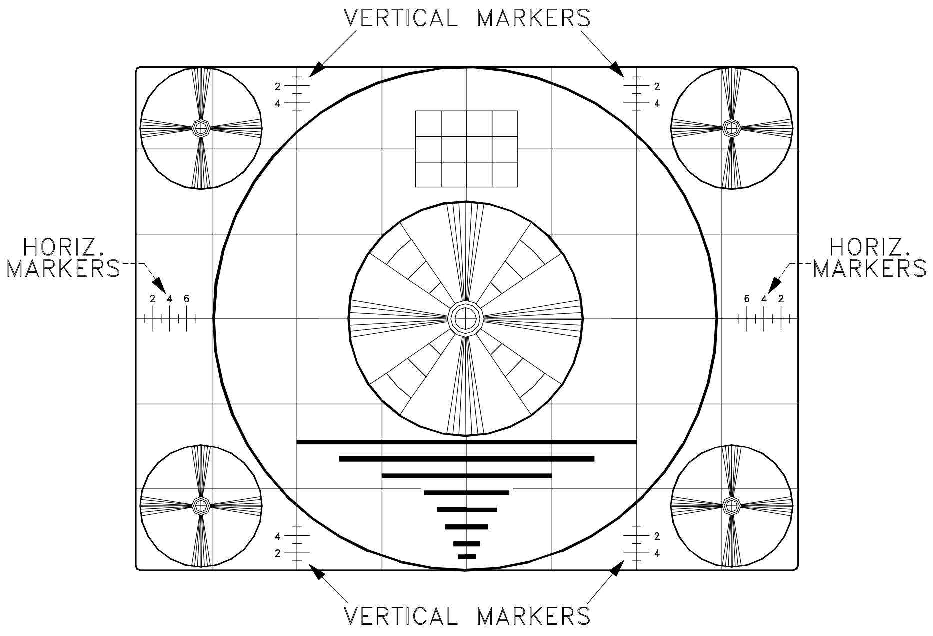
1. DO NOT change the initial values for "#8 VLIN" in the Defl. Jungle Function.
2. DO NOT exceed the following VHGT adjustment ranges:
   NTSC ... from -4 to +10
   HD ... from -10 TO +5

NTSC Mode

1. Supply an NTSC Monoscope signal to a Video Input.
2. Select the Monoscope as the signal source.
3. Activate the Adjustment Mode, JNGL Function.
4. Select and adjust each of the following items.
   - "7 VHGT" ... so the vertical marker sum = 4
   - "1 HWD" ... so the horizontal marker sum = 7
5. Save data and Exit the Service Mode.

HD Mode

1. Supply an HD Monoscope signal to the DTV HD Inputs.
2. Select the DTV Inputs as the signal source (Input button)
3. Activate the Service Mode, Defl. Jungle Function.
4. Select and adjust each of the following items.
   - "7 VHGT" ... so the vertical marker sum = 2
   - "1 HWD" ... so the horizontal marker sum = 5
5. Save data and Exit the Service Mode.



[Convergence Circuit]

15. Convergence Geometry Adjustment

Purpose: To set the Convergence circuit geometry adjustments.

Symptom: Raster distortion at the top, bottom or sides of the picture.

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- None HD -- HD sync
Input Terminal	Video & DTV Inputs

Note: *Deflection Circuit Geometry must be performed before this adjustment.*

NTSC mode

1. Select a Video Input with no signal.
2. Activate the Convergence Mode, Coarse Green.
3. Adjust the Coarse Green Items shown below for straight crosshatch lines.
4. Select the Fine Green Mode, a Cursor is displayed on the crosshatch.
5. Use the Cursor to adjust for straight crosshatch lines.
6. Exit the Convergence Mode.

HD mode

1. Supply horizontal and vertical HD sync to the DTV Inputs and select the DTV Inputs as the source.
   Note: I*f an HD signal is not available, use the Conv. HD with No Signal Procedure*
2. Enter the Convergence Mode, Coarse Green.
3. Repeat NTSC Steps 3 through 6 in the HD mode.

CONVERGENCE MODE

Activate MENU-0-3-5-9
Misc. ...."6"
Coarse...........................…"5"
Fine ...."4"
Color (R,G or B)......AUDIO
Item No....................VIDEO
Adjust/Move..........ADJUST
Cursor Toggle.........ENTER
Save & Exit.....MENU (twice)

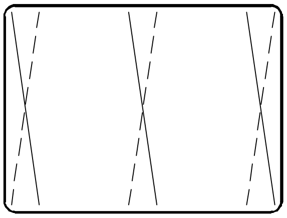
CONV. HD WITH NO SIGNAL

1. MENU-0-3-7-0
2. Set DTV Port to 1080i
3. MENU (Twice)
4. INPUT select DTV inputs
5. MENU-0-3-5-9

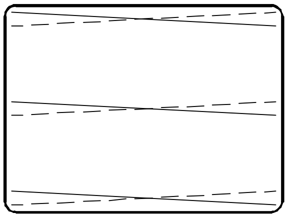
After Adjusting, set the DTV Port to AUTO

COARSE GREEN ADJUSTMENTS

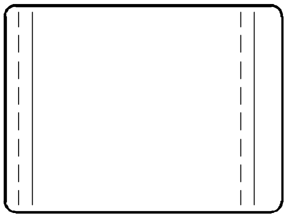
3 SKEW



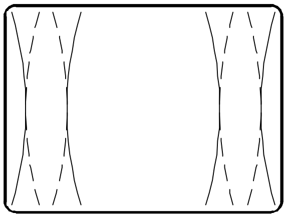
4 TILT



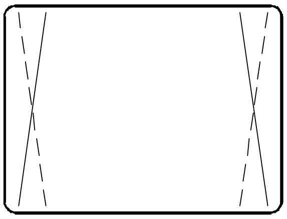
6 HLIN



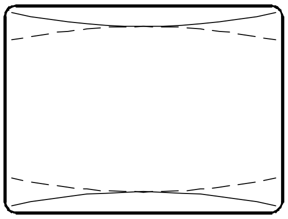
7 SPCC



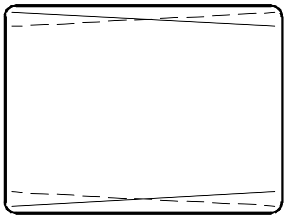
8 HKEY



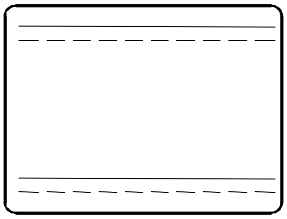
9 TBPC



10 VKEY



12 VLIN



[Convergence Circuit]

16. Centering and Static Convergence

Purpose: To converge red, green and blue at the center of the screen

Symptom: Color edging over the entire picture.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- Monoscope HD -- Monoscope
Input Terminal	Video & DTV Inputs

CONVERGENCE MODE

Activate ……..MENU-0-3-5-9
Misc. ………………….…."6"
Coarse…………………..…"5"
Fine ……………………..."4"
Color (R,G or B)……AUDIO
Item No……………..VIDEO
Adjust/Move……….ADJUST
Cursor Toggle……..ENTER
Save & Exit…..MENU (twice)

Preliminary

Degauss the shield cover and bracket unit of the CRT assembly and chassis.
DO NOT degauss the CPM Assemblies.

HD mode

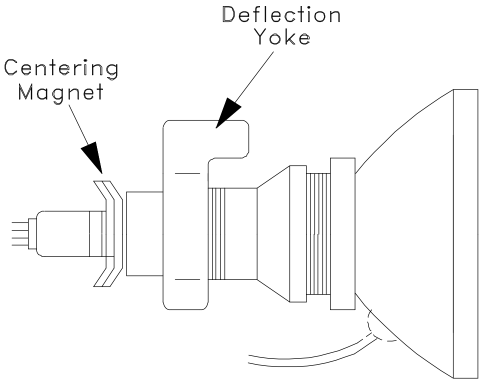
1. Supply an HD Monoscope signal to the DTV Inputs.
2. Select the DTV Inputs as the signal source (Input button).
3. Enter the Convergence Coarse mode.
4. Set the data for the “HSTA” and “VSTA” items to:

GREEN	RED	BLUE
HSTA = 0	HSTA = 50	HSTA = -50
VSTA = 0	VSTA = 0	VSTA = 0

5. In the Coarse Green mode:
   - Center the Green Raster using the Green Centering Magnet.
   - Rotate the Green Deflection Yoke to correct any tilt.
6. In the Coarse Red mode, use the Red Centering Magnet to converge red on the green at the center of screen. Correct any red tilt with the Red Deflection Yoke.
7. In the Coarse Blue mode, repeat Step 6 using the Blue Centering magnet and the Blue Deflection Yoke.
8. Exit the Convergence mode.

SD mode

1. Supply an NTSC Monoscope signal to a Video Input.
2. Select the Monoscope as the signal source (Input button).
3. Enter the Convergence Coarse Green mode.
4. If needed, center the green raster using “1 HSTA” and “2 VSTA” adjustments.
5. In the Coarse Red mode, use “1 HSTA” and “2 VSTA” adjustments to converge the red on the green at the center of the screen.
6. In the Coarse Blue mode, repeat step 5 to converge the blue of the green.
7. Exit the Convergence Mode



[Convergence Circuit]

17. Coarse Convergence

Purpose: To converge red and blue on green at the edges of the screen.

Symptom: Color edging at the top, bottom and sides of the screen.

Measuring Instrument	-----
Test Point	------
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- None HD -- HD sync
Input Terminal	Video & HD Inputs

SD mode

1. Select an External Input with no signal.
2. Activate the Convergence Mode, Coarse Red.
3. Adjust the Items shown below to converge the red on the green.
4. Select Coarse Blue mode.
5. Adjust the Items shown below to converge the blue on the green.
   Note: *If center convergence shifts, use red and blue Items "1 HSTA" and "2 VSTA" to correct the shift.*
6. Exit the Convergence Mode.

HD mode

1. Supply horizontal and vertical HD sync to the DTV Inputs and select the DTV Inputs as the source.
   Note: I*f an HD signal is not available, use the Conv. HD with No Signal Procedure.*
2. Repeat SD Steps 2 through 5 in the HD mode.
3. Exit the Convergence mode.

CONVERGENCE MODE

Activate	MENU-0-3-5-9
Misc.	"6"
Coarse	"5"
Fine	"4"
Color (R,G or B)	AUDIO
Item No	VIDEO
Adjust/Move	ADJUST
Cursor Toggle	ENTER
Save & Exit	MENU (twice)

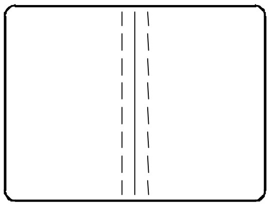
CONV. HD WITH NO SIGNAL

1. MENU-0-3-7-0
2. Set DTV Port to 1080i
3. MENU (Twice)
4. INPUT select DTV inputs
5. MENU-0-3-5-9

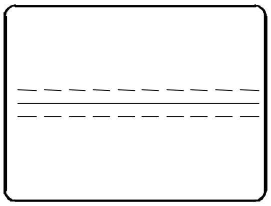
After Adjusting, set the DTV Port to AUTO

COARSE CONVERGENC RED & BLUE ADJUSTMENTS

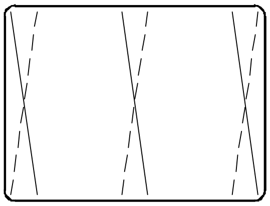
1 HSTA*



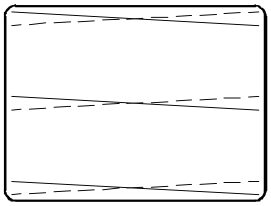
2 VSTA*



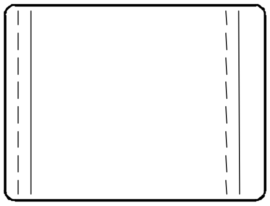
3 SKEW



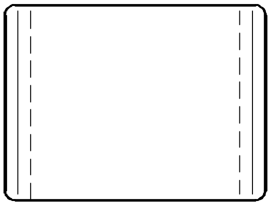
4 TILT



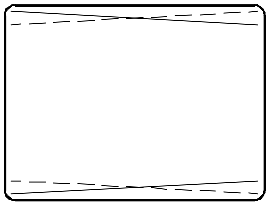
5 HLIN



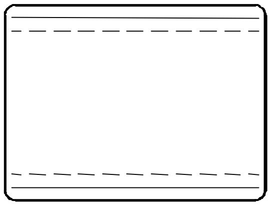
6 HWID



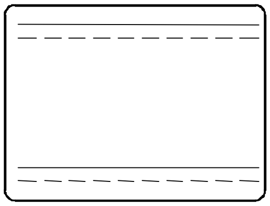
7 VKEY



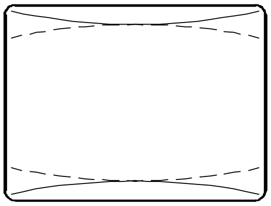
8 VWID



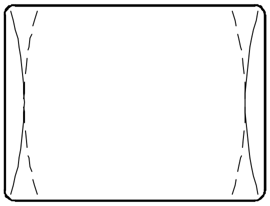
9 VLIN



10 TBPC



11 HSBW



* Data should not exceed ±100

[Convergence Circuit] **18. Fine Convergence**	**Purpose:** To converge red, green and blue at the edges of the screen **Symptom:** Color edging at the edges of the picture.

Measuring Instrument	-----
Test Point	-----
Ext. Trigger	------
Measuring Range	-----
Input Signal	NTSC -- None HD -- HD sync
Input Terminal	Video & DTV Inputs

CONVERGENCE MODE

Activate ……..MENU-0-3-5-9
Misc. ……………………."6"
Coarse……………………."5"
Fine ……………………..."4"
Color (R,G or B)……AUDIO
Item No……………..VIDEO
Adjust/Move……….ADJUST
Cursor Toggle………ENTER
Save & Exit…..MENU (twice)

SD Fine Adjustment

1. Select an External Input, no signal.
2. Activate the Convergence Mode, Fine Red.
3. Use the Cursor to converge red on the green.
4. Select the Fine Blue mode.
5. Use the Cursor to converge blue on the green.
6. Exit the Convergence mode.

HD Fine Adjustment

1. Supply an HD signal (sync only) to the DTV inputs and select DTV with the “Audio” button.
   Note: I*f an HD signal is not available, use the Conv. HD with No Signal Procedure.*
2. Repeat SD Fine Adjustment Steps 2 through 6, in the HD mode.

CONV. HD WITH NO SIGNAL

1. MENU-0-3-7-0
2. Set DTV Port to 1080i
3. MENU (Twice)
4. INPUT select DTV inputs
5. MENU-0-3-5-9

After Adjusting, set the DTV Port to AUTO

CHIP PARTS REPLACEMENT

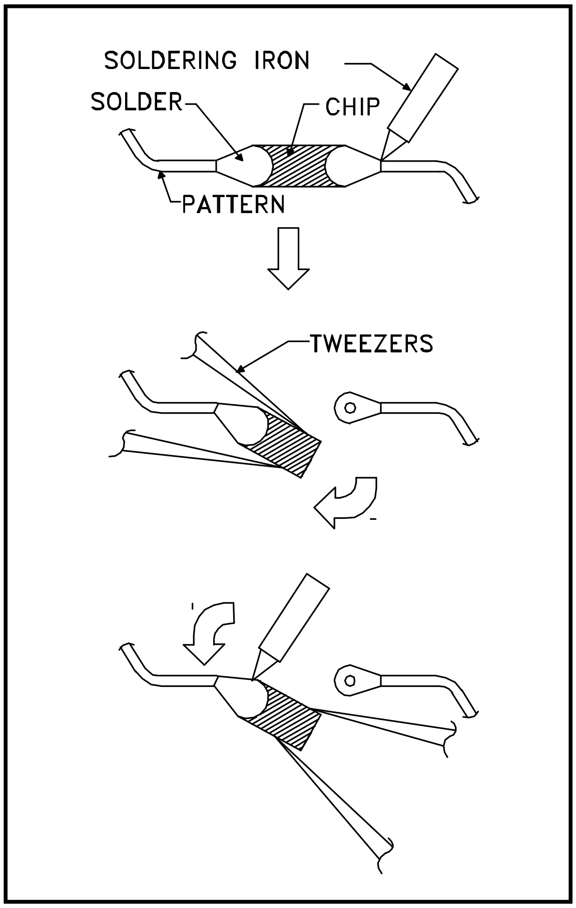
Some resistors, shorting jumpers (0 Ohm resistors), ceramic capacitors, transistors and diodes are chip parts. The following precautions should be taken when replacing these parts.

Cautions:

1. Use a fine tipped, well insulated soldering iron (approximately 30 watts), and tweezers.
2. Melt the solder and remove the chip parts carefully so as not to tear the copper foil from the printed circuit board.
3. Discard removed chips; do not reuse them.
4. Do not apply heat for more than 3 (three) seconds to new chip parts.
5. Avoid using a rubbing stroke when soldering.
6. Take care not to scratch, or damage the chip parts when soldering.
7. Supplementary cementing is not required.

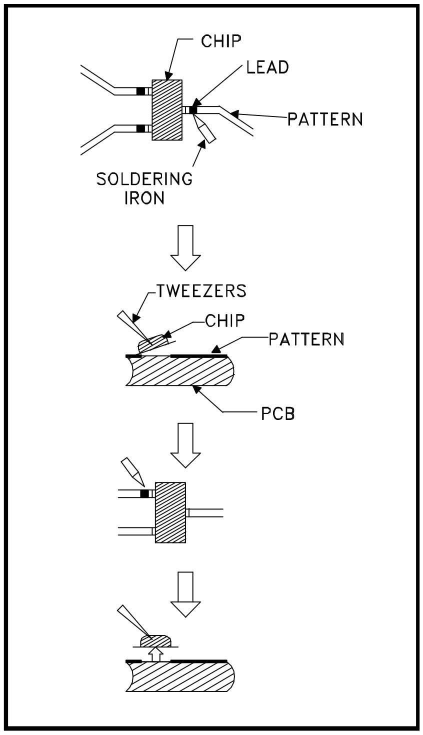
Chip Parts Removal (Resistors, Capacitors, etc.)

1. Grasp the part with tweezers. Melt the solder at both sides alternately, and remove one side of the part with a twisting motion.
2. Melt the solder at the other side and remove the part.


SOLDERING IRON
SOLDER
CHIP
PATTERN
TWEEZERS

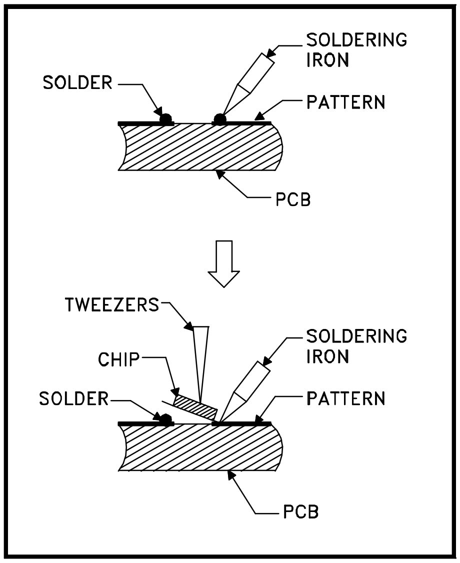
Chip Parts Removal (Transistors)

1. Melt the solder of one lead and lift the side of that lead upward.
2. Simultaneously melt the solder of the other two leads and lift the part from the PCB.


CHIP
LEAD
PATTERN
SOLDERING IRON
TWEEZERS
CHIP
PATTERN
PCB

Replacement

1. Presolder the contact points on the circuit pattern.
2. Press the part downward with tweezers and apply the soldering iron as shown.


SOLDERING IRON
SOLDER
PATTERN
PCB
TWEEZERS
SOLDERING IRON
CHIP
SOLDER
PATTERN
PCB

REPLACEMENT PARTS

Parts Ordering

To expedite delivery of replacement parts orders, specify the following:

1. Model Number/Serial Number
2. Part Number and description
3. Quantity

Note: Unless complete information is supplied, delay in processing of orders will result.

Critical and Warranty Parts Designation

Critical Electrical Components are indicated by **Bold Type** in the Parts List, and in the schematic diagrams by shading. ▨

Warranty Return Parts are indicated in the Parts List with an **(*)**.

Parts Tolerance Codes

Refer to the following chart for tolerance characteristics of electrical components.

MARK	B	C	D	F	G	J	K
Tolerance %	± 0.1	± 0.25	± 0.5	± 1	± 2	± 5	± 10

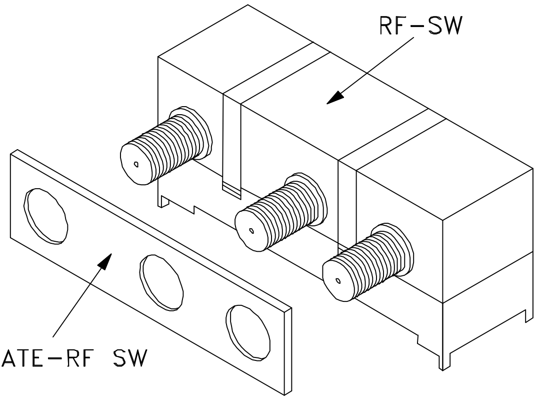
MARK	M	N	V	X	Z	P	Q
Tolerance %	± 20	± 30	± 10	+ 40 - 20	+80 - 20	+100 - 0	+30 - 10

MARK	M	N	V	X	Z
Tolerance (pF)	± 0.1	± 0.25	± 0.5	± 1	± 2

Replacement Part Notes

When Replacing the RF-Switch (RF-SW) or the PCB-SIGNAL:

1. Remove the PLATE-RF SW from the original component, shown in the diagram at the right.
2. Install the PLATE-RF SW on the new RF-SW.



When Replacing the EEPROM

The EEPROMs (IC7C01, IC2K02 and IC8D0) store the adjustment data. After replacing the EEPROM, readjust the data to the values given in the "Adjustment Items List" tables. If good performance is not obtained with these values, perform the Adjustment Procedure(s) given in the Description and Adjustment columns.

QUICK REFERENCE FOR COMMON REPLACEMENT PARTS

CRT ASSEMBLIES

PART NO.	DESCRIPTION
251C219010	ASSY-CRT-RED
251C219020	ASSY-CRT-GREEN
252C219030	ASSY-CRT-BLUE

REMOTE CONTROL

290P116010	REMOTE CONTROL	WT-42313
290P117010	REMOTE CONTROL	WT-42413

HIGH VOLTAGE / DEFLECTION COMPONENTS

Q5A31	**261P122010**	**HORIZ-OUT 2SC5778**
Q5A51	**261P082010**	**HV-OUT 2SK2771-O1R**
T5A51	**334P281010**	**TRANS-FLYBACK**
	129P059050	VR-FOCUS
	330P288010	**DEFL-YOKE**
	453B036040	**CAP-ANODE - 14.5”**
	453B036050	**CAP-ANODE - 22”**
	453B036060	**CAP-ANODE - 12”**

MISCELLANEOUS

MODEL	MIRROR	LENTICULAR SCREEN	FRESNEL LENS	DIAMOND SHIELD
WT-42313	494D006010	491P136020	491P137020	760D628070
WT-42413	494D006010	491P136020	491P137020	760D639050

[#] Model Legend: (1) WT-42313, (2) WT-42413

TUBES

Ref #	Part #	Part Name & Description	[#]
	251C219010	**ASSY-CRT-RED**	
	251C219020	**ASSY-CRT-GREEN**	
	251C229030	**ASSY-CRT-BLUE**	

INTEGRATED CIRCUITS

Ref #	Part #	Part Name & Description	[#]
IC2C00	275P539020	IC-C-MOS - SP232ECN	
IC2C01	275P443010	IC-C-MOS - TC7SET08F	
IC2D00	270P974010	IC-C-MOS - SII907B	
IC2D01	275P981010	IC-C-MOS - 24LCS22AT/SN	
IC2D02	261P135010	FET-HEX - IRF7313	
IC2D03	270P677010	IC - BA033FP	
IC2K00	270P623010	IC - CXA2069Q	
IC2K02	275P533010	IC-C-MOS - M24C64WM6T	
IC2L00	270P658030	IC - CXA2019AQ/T4	
IC2L01	272P379020	IC - LM1881MX (NSC)	
IC2LA0	270P658030	IC - CXA2019AQ/T4	
IC2LA1	272P379020	IC - LM1881MX (NSC)	
IC2M00	275P496010	IC-C-MOS - UPD64082GF-3BA	
IC2M01	275P531010	IC-C-MOS - MSM54V16258B	
IC2MD1	272P379020	IC - LM1881MX (NSC)	
IC2N00	271P022010	IC - CXA2171AQ	
IC2N01	275P443010	IC-C-MOS - TC7SET08F	
IC2P00	275P718010	IC-C-MOS - TC74HC4053FT	
IC2P01	275P718010	IC-C-MOS - TC74HC4053FT	
IC2S00	270P870010	IC - CXA2151Q	
IC2S01	271P004010	IC - CM1208-08MS	
IC2V00	270P937010	IC - CXA2180Q	
IC2Y01	275P735010	IC-C-MOS - TDA8601TD	
IC2Y50	270P472060	IC - NJM7805FA	
IC3A01	275P731010	IC-C-MOS - MSP3445G	
IC3E01	**270P750010**	**IC - LA4663**	
IC3K00	270P838010	IC-C-MOS - NJM2520M	
IC3K01	270P838010	IC-C-MOS - NJM2520M	
IC4B01	**270P261020**	**IC - TDA8177**	
IC5A00	**267P163010**	**HIC - MSPAD401**	
IC5A01	**270P914010**	**IC - NJM2119D**	
IC5A02	**266P727040**	**IC - UPC339C/LM339N**	
IC5A03	**270P704010**	**IC - LM4040BIZ-10.0**	
IC5A05	270P816010	IC - NJM431L	
IC6B01	**270P667010**	**IC - TDA6120Q**	
IC6G01	**270P667010**	**IC - TDA6120Q**	
IC6K00	270P818020	IC - CXA3506R	
IC6K04	274P088010	IC-C-MOS - MC74HC14AF	
IC6L00	275P848010	IC-C-MOS - S1L60283F30C100	
IC6L21	274P901010	IC-C-MOS - TC74HCT7007AF	
IC6L22	270P898030	IC - SI-3025LSA-TL	
IC6L23	270P677010	IC - BA033FP	
IC6L24	275P236020	IC-C-MOS - TC74LVX244FT	
IC6L26	270P506010	IC - M51957BFP	
IC6M00	270P942010	IC - CXD2309AQ	
IC6R01	**270P667010**	**IC - TDA6120Q**	
IC7A00	**275P729030**	**IC-M306V2ME -209FP**	
IC7C01	275P533010	IC-C-MOS - M24C64WM6T	
IC7C10	270P706020	IC - MAX823REUK	
IC7D00	275P434010	IC-C-MOS - TC74HC4066AFT	
IC7D01	275P560010	IC-C-MOS - ADS931E	
IC7D02	275P560010	IC-C-MOS - ADS931E	
IC7D03	275P560010	IC-C-MOS - ADS931E	
IC7D10	275P769010	IC-C-MOS - TC74AC157FT	
IC7D11	275P769010	IC-C-MOS - TC74AC157FT	
IC7E00	275P434010	IC-C-MOS - TC74HC4066AFT	
IC7E01	275P560010	IC-C-MOS - ADS931E	
IC7E02	275P560010	IC-C-MOS - ADS931E	
IC7E03	275P560010	IC-C-MOS - ADS931E	
IC7E10	275P769010	IC-C-MOS - TC74AC157FT	
IC7E11	275P769010	IC-C-MOS - TC74AC157FT	
IC7G01	275P247010	IC-C-MOS - MB40C958VPFV	
IC7H00	275P799010	IC-C-MOS - UPD85008XAGD	
IC7H01	270P898030	IC - SI-3025LSA-TL	
IC7H02	275P716010	IC-C-MOS - uPD4516161AG5-A10-9NF	
IC7H03	275P716010	IC-C-MOS - uPD4516161AG5-A10-9NF	
IC7H04	270P348010	IC - TLC2932IPW	
IC7H05	270P348010	IC - TLC2932IPW	
IC7H06	274P901010	IC-C-MOS - TC74HCT7007AF	
IC7H07	275P236020	IC-C-MOS - TC74LVX244FT	
IC7H08	274P901010	IC-C-MOS - TC74HCT7007AF	
IC7H09	275P278010	IC-C-MOS - TC74LVX14FT	
IC7H10	275P278010	IC-C-MOS - TC74LVX14FT	
IC7V01	275P362010	IC-C-MOS - Z86130	
IC8C01	**267P173010**	**HIC - STK394-250**	
IC8C02	**267P173010**	**HIC - STK394-250**	
IC8D00	275P595010	IC-C-MOS - CM0022AF	
IC8D01	275P222020	IC-C-MOS - M24C32MN6T	
IC8E00	270P751010	IC - TL084CD	
IC8E01	270P751010	IC - TL084CD	
IC8E02	270P751010	IC - TL084CD	
IC8E03	275P721010	IC-C-MOS - CD0031AM	
IC9A20	**267P164010**	**HIC - TNY264P**	
IC9A50	**267P161010**	**HIC - STR-F6428S**	
IC9A51	**267P062050**	**HIC - SE110N**	
IC9B01	**270P668040**	**IC - SI-8120S**	
IC9B02	**270P668020**	**IC - SI-8050S**	
IC9C01	270P210010	IC - NJM7809FA/AN7809F	
IC9C11	270P928010	IC - BA17809FP	
IC9C21	270P677020	IC - BA05FP	
IC9C31	270P677010	IC - BA033FP	
IC9C41	270P677010	IC - BA033FP	

TRANSISTORS

CHIP Type Transistors (Listed by Part No.)

Part No.	Description
260P817010	2SA1037K-Q
260P817050	2SA1037K-R,S/2SB709AI-R,S
260P817080	2SA1037K-R,S
260P818010	2SC2412K-Q
260P818030	2SC2412K-S
260P818050	2SC2412K-R,S/2SD601AI-R,S
260P835030	2SC2413K-Q
261P801010	2SA1252-5,6

Conventional Transistors (By Ref #)

Ref #	Part #	Part Name & Description	[#]
Q4B01	260C004020	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q5A01	**261P126010**	**TR - 2SD2052**	
Q5A02	260P561020	TR - 2SA1371-E	
Q5A03	260P386010	TR - 2SC2230-GR	
Q5A04	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
Q5A05	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q5A06	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q5A07	**260C004010**	**TR - 2SC1740S-R,S/2SC3311A-R,S**	
Q5A08	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q5A09	**260C004010**	**TR - 2SC1740S-R,S/2SC3311A-R,S**	
Q5A10	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q5A20	**260C004050**	**TR - 2SA933S-R,S/2SA1309A-R,S**	
Q5A31	**261P122010**	**TR - 2SC5778**	
Q5A32	261P127010	TR - 2SK2774-01	
Q5A33	260C004020	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q5A34	260P561020	TR - 2SA1371-E	
Q5A35	260P386010	TR - 2SC2230-GR	
Q5A36	260P630010	TR - 2SD2012	
Q5A37	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q5A38	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q5A39	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q5A40	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q5A51	**261P082010**	**TR - 2SK2771-01R**	
Q5A57	260C416030	TR - 2SC2274-F/2SC2274K-F	
Q5A59	260C255040	TR - 2SA950-Y	
Q5H01	260C001040	TR - 2SC2603-G/2SC1740S-E	
Q5H03	260C001040	TR - 2SC2603-G/2SC1740S-E	
Q5H04	260C001040	TR - 2SC2603-G/2SC1740S-E	
Q5H05	260C001040	TR - 2SC2603-G/2SC1740S-E	
Q5H06	260C001060	TR - 2SA1115-F/2SA933S-S	
Q5H09	260C001030	TR - 2SC2603-F,G/2SC1740S-S,E	
Q5H10	260C001060	TR - 2SA1115-F/2SA933S-S	
Q5H11	**260P644040**	**TR - 2SA1535-R**	
Q5H12	**260P647040**	**TR - 2SC3944-R**	
Q5K00	260P664030	TR - 2SC4636	
Q5K01	260P664030	TR - 2SC4636	
Q5K02	260C004020	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q5K03	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q6B01	260C001010	TR - 2SC2603-E,F/2SC1740S-R,S	
Q6B02	260C001050	TR - 2SA1115-E,F/2SA933S-R,S	
Q6G01	260C001010	TR - 2SC2603-E,F/2SC1740S-R,S	
Q6R01	260C001010	TR - 2SC2603-E,F/2SC1740S-R,S	
Q9A50	260C416030	TR - 2SC2274-F/2SC2274K-F	
Q9A51	**260C004010**	**TR - 2SC1740S-R,S/2SC3311A-R,S**	
Q9A54	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q9A55	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q9B01	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	
Q9B02	260C004050	TR - 2SA933S-R,S/2SA1309A-R,S	
Q9B03	260C004010	TR - 2SC1740S-R,S/2SC3311A-R,S	

DIODES

Ref #	Part #	Part Name & Description	[#]
D2D28	262P805050	D-CHIP - UDZS5.1B	
D2W01	264P828010	D-CHIP - DAN202U/MA142WK	
D2W02	264P828010	D-CHIP - DAN202U/MA142WK	
D2W03	264P828010	D-CHIP - DAN202U/MA142WK	
D2W04	264P828010	D-CHIP - DAN202U/MA142WK	
D4B01	264D056020	DIODE - S5500D/EM1Z/ERB12-02RK	
D4B04	264P045080	DIODE - 1S2076A/1S2471OM	
D5A01	264P045080	DIODE - 1S2076A/1S2471OM	
D5A02	264D056020	DIODE - S5500D/EM1Z/ERB12-02RK	
D5A03	264P045080	DIODE - 1S2076A/1S2471OM	
D5A12	264P045080	DIODE - 1S2076A/1S2471OM	
D5A13	264P045080	DIODE - 1S2076A/1S2471OM	
D5A14	264P045080	DIODE - 1S2076A/1S2471OM	
D5A33	264P669030	DIODE - S3L20U	
D5A34	264P460060	DIODE - EQA02-05C/RD5.1EB1	
D5A35	264P045080	DIODE - 1S2076A/1S2471OM	
D5A36	264P045080	DIODE - 1S2076A/1S2471OM	
D5A37	264P521010	DIODE - EU 1Z	
D5A51	**262P039010**	**DIODE - BYW96E/20**	
D5A52	**264P899010**	**DIODE - BYV26E**	
D5A53	264P466040	DIODE - EQA02-15AB/RD16EB1	
D5A54	**264P622010**	**DIODE - AL01Z**	
D5A55	**264P622010**	**DIODE - AL01Z**	
D5A56	**264P045080**	**DIODE - 1S2076A/1S2471OM**	
D5A57	**264P521010**	**DIODE - EU 1Z**	
D5A58	264P045080	DIODE - 1S2076A/1S2471OM	
D5A60	**264P465060**	**DIODE - EQA02-12B/RD13EB2**	
D5A61	**264P465030**	**DIODE - RD12EB3**	
D5A80	264D056020	DIODE - S5500D/EM1Z/ERB12-02RK	
D5H01	264P045080	DIODE - 1S2076A/1S2471OM	
D5H02	264P045080	DIODE - 1S2076A/1S2471OM	
D5K01	264P528030	DIODE - RP 1H	
D5K02	264P543010	DIODE - EG01	
D5K03	264P543010	DIODE - EG01	
D5K10	264P528030	DIODE - RP 1H	
D5K11	264P528030	DIODE - RP 1H	
D6B00	262P063010	DIODE - 1SS244	
D6B03	264P462020	DIODE - EQA02-07CD/RD7.5EB1,B2	
D6B07	262P063010	DIODE - 1SS244	
D6B08	262P063010	DIODE - 1SS244	
D6B10	264P501050	DIODE - HZ3BLL	
D6G00	262P063010	DIODE - 1SS244	
D6G07	262P063010	DIODE - 1SS244	
D6G08	262P063010	DIODE - 1SS244	
D6R00	262P063010	DIODE - 1SS244	
D6R07	262P063010	DIODE - 1SS244	
D6R08	262P063010	DIODE - 1SS244	
D7H00	264P828010	D-CHIP - DAN202U/MA142WK	
D7L21	264P212020	D-LED - LN31GPH	
D8C03	264P486060	DIODE - RD9.1FB3	
D8C04	264P486060	DIODE - RD9.1FB3	
D9A01	**262P031010**	**DIODE - D6SB80**	
D9A20	264P825040	DIODE - ERA15-08	
D9A21	264P825040	DIODE - ERA15-08	
D9A24	264P045080	DIODE - 1S2076A/1S2471OM	
D9A28	264P045080	DIODE - 1S2076A/1S2471OM	
D9A29	264P461050	DIODE - EQA02-06B/RD5.6EB3	
D9A30	264P724010	DIODE - STF14	
D9A31	264P463030	DIODE - RD8.2EB	
D9A50	264P045080	DIODE - 1S2076A/1S2471OM	
D9A53	264P622010	DIODE - AL01Z	
D9A54	264P622010	DIODE - AL01Z	
D9A55	264P622010	DIODE - AL01Z	
D9A56	264P566010	DIODE - FMP-G12S	
D9A57	264P899010	DIODE - BYV26E	
D9A58	264P588010	DIODE - FML-G16S	
D9A60	264P566010	DIODE - FMP-G12S	
D9A61	264P669030	DIODE - S3L20U	
D9A66	264P045080	DIODE - 1S2076A/1S2471OM	
D9A67	264P461050	DIODE - EQA02-06B/RD5.6EB3	
D9A68	264P469070	DIODE - EQA02-28A/RD27EB4	
D9A69	264P527020	DIODE - AK04	
D9B01	264P045080	DIODE - 1S2076A/1S2471OM	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
D9B02	264P045080	DIODE - 1S2076A/1S2471OM	
D9B03	264P045080	DIODE - 1S2076A/1S2471OM	
D9B04	264P880010	DIODE - RK46	
D9B05	264P880010	DIODE - RK46	
D9B07	264P485060	DIODE - RD7.5FB2	

COILS

Ref #	Part #	Part Name & Description	[#]
L1A30	321C114010	COIL-RF - 2200MH-J	
L1A31	325C461030	COIL-PEAKING - 10MH-K	
L1B30	321C114010	COIL-RF - 2200MH-J	
L1B31	325C461030	COIL-PEAKING - 10MH-K	
L2C01	325C146090	COIL-CHIP - 33MH-J	
L2D07	409P777080	EMI-F-CHIP - BLM21P221S	
L2D08	409P777080	EMI-F-CHIP - BLM21P221S	
L2D09	409P777080	EMI-F-CHIP - BLM21P221S	
L2D13	409P777080	EMI-F-CHIP - BLM21P221S	
L2D17	409P777080	EMI-F-CHIP - BLM21P221S	
L2D18	409P777080	EMI-F-CHIP - BLM21P221S	
L2D19	409P777080	EMI-F-CHIP - BLM21P221S	
L2D23	409P777080	EMI-F-CHIP - BLM21P221S	
L2D24	409P777080	EMI-F-CHIP - BLM21P221S	
L2D26	409P777080	EMI-F-CHIP - BLM21P221S	
L2D27	409P777080	EMI-F-CHIP - BLM21P221S	
L2D31	409P777080	EMI-F-CHIP - BLM21P221S	
L2D32	409P777080	EMI-F-CHIP - BLM21P221S	
L2D37	409P777080	EMI-F-CHIP - BLM21P221S	
L2D38	409P777080	EMI-F-CHIP - BLM21P221S	
L2D70	409P777080	EMI-F-CHIP - BLM21P221S	
L2D71	325C241030	COIL-CHIP - 10MH-K	
L2K00	325C461030	COIL-PEAKING - 10MH-K	
L2K01	325C462080	COIL-PEAKING - 180MH-J	
L2K02	325C462080	COIL-PEAKING - 180MH-J	
L2K05	409P777080	EMI-F-CHIP - BLM21P221S	
L2L00	409P777080	EMI-F-CHIP - BLM21P221S	
L2L01	325C461030	COIL-PEAKING - 10MH-K	
L2L02	325C461030	COIL-PEAKING - 10MH-K	
L2LA0	325C242050	COIL-CHIP - 100MH-K LOW-R	
L2LA1	325C461030	COIL-PEAKING - 10MH-K	
L2LA2	325C461030	COIL-PEAKING - 10MH-K	
L2M00	409P777080	EMI-F-CHIP - BLM21P221S	
L2M01	409P777080	EMI-F-CHIP - BLM21P221S	
L2M32	409P777080	EMI-F-CHIP - BLM21P221S	
L2M50	325C146050	COIL-CHIP - 15MH-J	
L2M93	409P777080	EMI-F-CHIP - BLM21P221S	
L2MA0	325C461050	COIL-PEAKING - 15MH-K	
L2MA1	325C461030	COIL-PEAKING - 10MH-K	
L2MD1	325C461030	COIL-PEAKING - 10MH-K	
L2N00	325C461090	COIL-PEAKING - 33MH-K	
L2NA1	325C461030	COIL-PEAKING - 10MH-K	
L2NA2	325C461080	COIL-PEAKING - 27MH-K	
L2NC0	325C461030	COIL-PEAKING - 10MH-K	
L2NC1	325C461030	COIL-PEAKING - 10MH-K	
L2P00	325C242050	COIL-CHIP - 100MH-K LOW-R	
L2P01	325C461030	COIL-PEAKING - 10MH-K	
L2S00	325C461090	COIL-PEAKING - 33MH-K	
L2V19	325C461010	COIL-PEAKING - 6.8MH-K	
L2V29	325C461030	COIL-PEAKING - 10MH-K	
L2V55	325C461030	COIL-PEAKING - 10MH-K	
L2V61	325C461010	COIL-PEAKING - 6.8MH-K	
L2W02	409P923060	EMI-F-CHIP - BLM21B272S	
L2W03	409P923060	EMI-F-CHIP - BLM21B272S	
L2W04	409P923060	EMI-F-CHIP - BLM21B272S	
L2W50	325C145090	COIL-CHIP - 4.7MH-J	
L2W51	325C146030	COIL-CHIP - 10MH-J	
L2W60	325C145090	COIL-CHIP - 4.7MH-J	
L2W61	325C146030	COIL-CHIP - 10MH-J	
L2W70	325C145090	COIL-CHIP - 4.7MH-J	
L2W71	325C146030	COIL-CHIP - 10MH-J	
L3A10	409P923060	EMI-F-CHIP - BLM21B272S	
L3A49	409P923060	EMI-F-CHIP - BLM21B272S	
L3K00	325C461030	COIL-PEAKING - 10MH-K	
L4B01	321C130010	COIL-RF - 2MH	
L4B02	321C130090	COIL-RF - 10MH-K	
L5A22	333P059020	COIL-HORIZ-LIN	
L5A31	411P001010	FERRITE-LEAD	
L5A34	321C130010	COIL-RF - 2MH	
L5A41	321C141010	COIL-RF - 6.8MH-M	
L5A51	321C151040	COIL-RF - 12MH-K	
L5A54	411D009020	FERRITE-CORE	
L6B50	411P001010	FERRITE-LEAD	
L6G50	411P001010	FERRITE-LEAD	
L6K00	325C241030	COIL-CHIP - 10MH-K	
L6K01	325C241030	COIL-CHIP - 10MH-K	
L6K02	325C241030	COIL-CHIP - 10MH-K	
L6K03	409P777080	EMI-F-CHIP - BLM21P221S	
L6K04	409P777080	EMI-F-CHIP - BLM21P221S	
L6K05	409P777080	EMI-F-CHIP - BLM21P221S	
L6K06	409P777080	EMI-F-CHIP - BLM21P221S	
L6K07	409P777080	EMI-F-CHIP - BLM21P221S	
L6K08	409P777080	EMI-F-CHIP - BLM21P221S	
L6K09	409P777080	EMI-F-CHIP - BLM21P221S	
L6L20	409P777080	EMI-F-CHIP - BLM21P221S	
L6L21	409P777080	EMI-F-CHIP - BLM21P221S	
L6L22	409P777080	EMI-F-CHIP - BLM21P221S	
L6L23	409P777080	EMI-F-CHIP - BLM21P221S	
L6M00	409P777080	EMI-F-CHIP - BLM21P221S	
L6M01	325C242010	COIL-CHIP - 47MH-K LOW-R	
L6M03	325C241030	COIL-CHIP - 10MH-K	
L6R04	321C141010	COIL-RF - 6.8MH-M	
L6R50	411P001010	FERRITE-LEAD	
L7A16	409P777050	EMI-F-CHIP - BLM21B201S	
L7A62	409P777050	EMI-F-CHIP - BLM21B201S	
L7A99	409P777050	EMI-F-CHIP - BLM21B201S	
L7C21	409P777050	EMI-F-CHIP - BLM21B201S	
L7C22	409P777050	EMI-F-CHIP - BLM21B201S	
L7C23	409P777050	EMI-F-CHIP - BLM21B201S	
L7C24	409P777050	EMI-F-CHIP - BLM21B201S	
L7D00	409P777020	EMI-F-CHIP - BLM21A05	
L7D01	409P777020	EMI-F-CHIP - BLM21A05	
L7D03	409P777080	EMI-F-CHIP - BLM21P221S	
L7D04	409P777080	EMI-F-CHIP - BLM21P221S	
L7D11	325C241030	COIL-CHIP - 10MH-K	
L7D12	409P777020	EMI-F-CHIP - BLM21A05	
L7D13	325C241030	COIL-CHIP - 10MH-K	
L7D14	409P777020	EMI-F-CHIP - BLM21A05	
L7D15	325C241030	COIL-CHIP - 10MH-K	
L7E00	409P777020	EMI-F-CHIP - BLM21A05	
L7E01	409P777020	EMI-F-CHIP - BLM21A05	
L7E11	325C241030	COIL-CHIP - 10MH-K	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
L7E12	409P777020	EMI-F-CHIP - BLM21A05	
L7E13	325C241030	COIL-CHIP - 10MH-K	
L7E14	409P777020	EMI-F-CHIP - BLM21A05	
L7E15	325C241030	COIL-CHIP - 10MH-K	
L7G00	325C242050	COIL-CHIP - 100MH-K LOW-R	
L7G10	325C242050	COIL-CHIP - 100MH-K LOW-R	
L7G11	325C241030	COIL-CHIP - 10MH-K	
L7H00	409P777080	EMI-F-CHIP - BLM21P221S	
L7H02	409P777080	EMI-F-CHIP - BLM21P221S	
L7H03	409P777080	EMI-F-CHIP - BLM21P221S	
L7H04	409P777080	EMI-F-CHIP - BLM21P221S	
L7H05	409P777080	EMI-F-CHIP - BLM21P221S	
L7H06	409P777080	EMI-F-CHIP - BLM21P221S	
L7H07	409P777080	EMI-F-CHIP - BLM21P221S	
L7H08	325C241030	COIL-CHIP - 10MH-K	
L7H09	409P777080	EMI-F-CHIP - BLM21P221S	
L7H10	325C241030	COIL-CHIP - 10MH-K	
L7H11	409P777080	EMI-F-CHIP - BLM21P221S	
L7H12	409P777080	EMI-F-CHIP - BLM21P221S	
L7H13	409P777080	EMI-F-CHIP - BLM21P221S	
L7H14	409P777080	EMI-F-CHIP - BLM21P221S	
L7H15	409P777080	EMI-F-CHIP - BLM21P221S	
L7H16	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA0	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA1	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA2	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA3	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA4	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA5	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA6	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA7	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA8	409P777080	EMI-F-CHIP - BLM21P221S	
L7HA9	409P777080	EMI-F-CHIP - BLM21P221S	
L7HB0	409P777080	EMI-F-CHIP - BLM21P221S	
L7HB1	409P777080	EMI-F-CHIP - BLM21P221S	
L7HB2	409P777080	EMI-F-CHIP - BLM21P221S	
L7HB3	409P777080	EMI-F-CHIP - BLM21P221S	
L7HB4	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD0	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD1	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD2	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD3	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD4	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD5	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD6	409P777080	EMI-F-CHIP - BLM21P221S	
L7HD7	409P777080	EMI-F-CHIP - BLM21P221S	
L7K01	325C121030	COIL-PEAKING - 10MH-K	
L8C01	321C141070	COIL-RF - 22MH-K	
L8C02	321C141070	COIL-RF - 22MH-K	
L8C03	321C141070	COIL-RF - 22MH-K	
L8C04	321C141070	COIL-RF - 22MH-K	
L8D01	409P777080	EMI-F-CHIP - BLM21P221S	
L8D02	409P777080	EMI-F-CHIP - BLM21P221S	
L8D03	409P777080	EMI-F-CHIP - BLM21P221S	
L8D04	409P777080	EMI-F-CHIP - BLM21P221S	
L8D05	409P777080	EMI-F-CHIP - BLM21P221S	
L8D06	409P777080	EMI-F-CHIP - BLM21P221S	
L8D07	409P777080	EMI-F-CHIP - BLM21P221S	
L8D09	325C241030	COIL-CHIP - 10MH-K	
L8G00	409P777080	EMI-F-CHIP - BLM21P221S	

Ref #	Part #	Part Name & Description	[#]
L8G01	409P777080	EMI-F-CHIP - BLM21P221S	
L9A20	321C141070	COIL-RF - 22MH-K	
L9A50	411D009020	FERRITE-CORE	
L9A52	411D009020	FERRITE-CORE	
L9A53	321C141010	COIL-RF - 6.8MH-M	
L9A54	411D009020	FERRITE-CORE	
L9A55	321C142030	COIL-RF - 68MH-K	
L9A56	411D009020	FERRITE-CORE	
L9A57	321C141070	COIL-RF - 22MH-K	
L9A62	321C141010	COIL-RF - 6.8MH-M	
L9A65	321C141010	COIL-RF - 6.8MH-M	
L9B01	**351P226010**	**COIL-CHOKE - D1512C4-V 150UH**	
L9B02	321C141070	COIL-RF - 22MH-K	
L9B03	321C141070	COIL-RF - 22MH-K	
L9B04	**351P226010**	**COIL-CHOKE - D1512C4-V 150UH**	
L9B05	321C141030	COIL-RF - 10MH-K	
L9C01	321C142030	COIL-RF - 68MH-K	
L9C02	321C142030	COIL-RF - 68MH-K	
L9C59	325C460010	COIL-PEAKING - 1MH-K	
L9D00	**351P222010**	**LINE FILTER - ELF24V050A**	
L9D01	**351P222010**	**LINE FILTER - ELF24V050A**	
L9D02	**351P223010**	**FILTER-LINE - SLF15N0601**	
LC2C02	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC2C03	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC2K00	409P777020	EMI-F-CHIP - BLM21A05	
LC2K01	409P777020	EMI-F-CHIP - BLM21A05	
LC2K02	409P777020	EMI-F-CHIP - BLM21A05	
LC2K03	409P777020	EMI-F-CHIP - BLM21A05	
LC3K00	409P777020	EMI-F-CHIP - BLM21A05	
LC3K01	409P777020	EMI-F-CHIP - BLM21A05	
LC6K00	409P875090	EMI-F-CHIP - ELKE103FA	
LC6K01	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6K02	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6K03	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6K04	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6K05	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M00	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M01	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M02	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M03	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M04	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M05	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M06	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M07	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC6M09	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D02	409P875090	EMI-F-CHIP - ELKE103FA	
LC7D05	409P875090	EMI-F-CHIP - ELKE103FA	
LC7D10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D11	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D12	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7D14	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E11	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E12	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7E14	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G01	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G02	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G03	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
LC7G04	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G05	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G06	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G07	409P875090	EMI-F-CHIP - ELKE103FA	
LC7G08	409P875090	EMI-F-CHIP - ELKE103FA	
LC7G09	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G10	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G11	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G12	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LC7G13	409P876020	EMI-F-CHIP - CNF20C470S/CKD510JB1H470S	
LF7D00	409P901010	LP-FILTER - 14MHZ SMD	
LF7D01	409P901010	LP-FILTER - 14MHZ SMD	
LF7D02	409P901010	LP-FILTER - 14MHZ SMD	
LF7E00	409P901010	LP-FILTER - 14MHZ SMD	
LF7E01	409P901010	LP-FILTER - 14MHZ SMD	
LF7E02	409P901010	LP-FILTER - 14MHZ SMD	
LF7G00	409P901010	LP-FILTER - 14MHZ SMD	
LF7G01	409P901010	LP-FILTER - 14MHZ SMD	
LF7G02	409P901010	LP-FILTER - 14MHZ SMD	

TRANSFORMERS

Ref #	Part #	Part Name & Description	[#]
T5A31	**349P216010**	**TRANS-HORIZ**	
T5A32	**336P040010**	**TRANS-HORIZ-DRIVE**	
T5A51	**334P281010**	**TRANS-FLYBACK**	
T9A20	**350P796010**	**TRANS-PWR - ETS19AB1M3AG**	
T9A50	**350P795010**	**TRANS-POWER**	

VARIABLE RESISTORS

Ref #	Part #	Part Name & Description	[#]
	129P059050	VR-FOCUS	
RV9D00	**265P100020**	**VAR - ERZV10D271CS**	

RESISTORS

Chip Type Resistors (R-M-CHIP) Listed by Value

Part No.	Value	Part No.	Value
103P509050	1.16W 0OHM	103P493030	1/16W 2.2K-F
103P793030	1/16W 22-F	103P502090	1/16W 2.2K-J
103P500050	1/16W 22-J	103P503000	1/16W 2.7K-J
103P400060	1/8W 27-J	103P493060	1/16W 3K-F
103P500070	1/16W 33-J	103P493070	1/16W 3.3K-F
103P500090	1/16W 47-J	103P503010	1/16W 3.3K-J
103P501000	1/16W 56-J	103P493090	1/16W 3.9K-F
103P794060	1/16W 75-F	103P503020	1/16W 3.9K-J
103P501020	1/16W 82-J	103P494010	1/16W 4.7K-F
103P401030	1/8W 100-J	103P503030	1/16W 4.7K-J
103P501040	1/16W 120-J	103P494020	1/16W 5.1K-F
103P401050	1/8W 150-J	103P503040	1/16W 5.6K-J
103P490060	1/16W 160-F	103P494050	1/16W 6.8K-F
103P501060	1/16W 180-J	103P503050	1/16W 6.8K-J
103P490080	1/16W 200-F	103P503060	1/16W 8.2K-J
103P501070	1/16W 220-J	103P494090	1/16W 10K-F
103P491000	1/16W 240-F	103P503070	1/16W 10K-J
103P401080	1/8W 270-J	103P503080	1/16W 12K-J
103P491030	1/16W 330-F	103P495020	1/16W 13K-F
103P501090	1/16W 330-J	103P503090	1/16W 15K-J
103P491050	1/16W 390-F	103P504000	1/16W 18K-J
103P502000	1/16W 390-J	103P504010	1/16W 22K-J
103P502010	1/16W 470-J	103P504030	1/16W 33K-J
103P491080	1/16W 510-F	103P504050	1/16W 47K-J
103P502020	1/16W 560-J	103P504060	1/16W 56K-J
103P492000	1/16W 620-F	103P496080	1/16W 62K-F
103P492010	1/16W 680-F	103P496090	1/16W 68K-F
103P502030	1/16W 680-J	103P504070	1/16W 68K-J
103P492030	1/16W 820-F	103P509090	1/16W 75K-J
103P502040	1/16W 820-J	103P504080	1/16W 82K-J
103P402050	1/8W 1K-J	103P504090	1/16W 100K-J
103P492060	1/16W 1.1K-F	103P505000	1/16W 120K-J
103P502060	1/16W 1.2K-J	103P498050	1/16W 330K-F
103P492080	1/16W 1.3K-F	103P505050	1/16W 330K-J
103P492090	1/16W 1.5K-F	103P505090	1/16W 680K-J
103P402070	1/8W 1.5K-J	103P506000	1/16W 820K-J
103P502080	1/16W 1.8K-J	103P506070	1/16W 3.3M-J
103P493020	1/16W 2K-F		

Conventional Resistors (By Ref #)

Ref #	Part #	Part Name & Description	[#]
R3E09	109D151010	R-CARBON - 1/4W 2.2-J	
R3E11	109D151010	R-CARBON - 1/4W 2.2-J	
R3E12	109D151010	R-CARBON - 1/4W 2.2-J	
R3E14	109D151010	R-CARBON - 1/4W 2.2-J	
R4B01	103P465040	R-METAL - 1/4W 16K-F	
R4B02	103P465040	R-METAL - 1/4W 16K-F	
R4B03	103P713090	R-CARBON - 1/4W 15K-J	
R4B05	103P714030	R-CARBON - 1/4W 33K-J	
R4B10	103C188040	R-METAL - 2W 2.2-J	
R4B12	103C188040	R-METAL - 2W 2.2-J	
R4B13	103P466000	R-METAL - 1/4W 2.4K-F	
R4B14	103P466000	R-METAL - 1/4W 2.4K-F	
R4B16	109P095010	R-METAL-LIN - 1/4W 5.1K-J	
R4B17	103P711090	R-CARBON - 1/4W 330-J	
R4B18	103P338020	R-CARBON-25 - 1/4W 1.5-J	
R4B20	103P711090	R-CARBON - 1/4W 330-J	
R4B23	103P411070	R-CARBON - 1/4W 220-J	
R4B24	103P712050	R-CARBON - 1/4W 1K-J	
R4B25	103P712050	R-CARBON - 1/4W 1K-J	
R4B26	103P713030	R-CARBON - 1/4W 4.7K-J	
R4B27	103P465040	R-METAL - 1/4W 16K-F	
R5A00	**103P711030**	**R-CARBON - 1/4W 100-J**	
R5A01	103P713010	R-CARBON - 1/4W 3.3K-J	
R5A02	103P711030	R-CARBON - 1/4W 100-J	
R5A03	103P713010	R-CARBON - 1/4W 3.3K-J	
R5A04	103P462040	R-METAL - 1/4W 910-F	
R5A05	103P713010	R-CARBON - 1/4W 3.3K-J	
R5A06	103P712050	R-CARBON - 1/4W 1K-J	
R5A07	103P714080	R-CARBON - 1/4W 82K-J	
R5A08	103P714020	R-CARBON - 1/4W 27K-J	
R5A09	103P714040	R-CARBON - 1/4W 39K-J	
R5A10	103P714040	R-CARBON - 1/4W 39K-J	
R5A11	103P713070	R-CARBON - 1/4W 10K-J	
R5A12	103P712050	R-CARBON - 1/4W 1K-J	
R5A13	103P464020	R-METAL - 1/4W 2.4K-F	
R5A14	103P464030	R-METAL - 1/4W 5.6K-F	
R5A15	103P713030	R-CARBON - 1/4W 4.7K-J	
R5A16	103P714010	R-CARBON - 1/4W 22K-J	
R5A17	103P712050	R-CARBON - 1/4W 1K-J	
R5A18	103P712050	R-CARBON - 1/4W 1K-J	
R5A19	103P712010	R-CARBON - 1/4W 470-J	
R5A20	103P714050	R-CARBON - 1/4W 47K-J	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
R5A21	103P713030	R-CARBON - 1/4W 4.7K-J	
R5A22	103P714010	R-CARBON - 1/4W 22K-J	
R5A23	103P713070	R-CARBON - 1/4W 10K-J	
R5A24	103P714070	R-CARBON - 1/4W 68K-J	
R5A25	103P464030	R-METAL - 1/4W 5.6K-F	
R5A26	103P464030	R-METAL - 1/4W 5.6K-F	
R5A27	103P713070	R-CARBON - 1/4W 10K-J	
R5A28	103P715010	R-CARBON - 1/4W 150K-J	
R5A29	103P714040	R-CARBON - 1/4W 39K-J	
R5A30	103P714040	R-CARBON - 1/4W 39K-J	
R5A31	103P712080	R-CARBON - 1/4W 1.8K-J	
R5A32	103P713070	R-CARBON - 1/4W 10K-J	
R5A33	103P463060	R-METAL - 1/4W 3K-F	
R5A34	103P711000	R-CARBON - 1/4W 56-J	
R5A35	103P142010	R-CARBON - 1/2W 470-J	
R5A36	103C393000	R-METAL-P - 3W 2.7K-J	
R5A37	103C393000	R-METAL-P - 3W 2.7K-J	
R5A38	103C197060	R-METAL - 3W 0.47-J	
R5A39	103P140090	R-CARBON - 1/2W 47-J	
R5A40	103P714090	R-CARBON - 1/4W 100K-J	
R5A41	103P715020	R-CARBON - 1/4W 180K-J	
R5A42	103P713070	R-CARBON - 1/4W 10K-J	
R5A43	103P714010	R-CARBON - 1/4W 22K-J	
R5A44	103P712090	R-CARBON - 1/4W 2.2K-J	
R5A45	103P143050	R-CARBON - 1/2W 6.8K-J	
R5A46	103C391050	R-METAL-P - 3W 150-J	
R5A47	103P714080	R-CARBON - 1/4W 82K-J	
R5A48	103P714050	R-CARBON - 1/4W 47K-J	
R5A49	103P711030	R-CARBON - 1/4W 100-J	
R5A50	103P714050	R-CARBON - 1/4W 47K-J	
R5A51	103P712050	R-CARBON - 1/4W 1K-J	
R5A52	103P713010	R-CARBON - 1/4W 3.3K-J	
R5A53	103P713070	R-CARBON - 1/4W 10K-J	
R5A54	103P714010	R-CARBON - 1/4W 22K-J	
R5A55	103P143050	R-CARBON - 1/2W 6.8K-J	
R5A56	**103P715060**	**R-CARBON - 1/4W 390K-J**	
R5A57	103P711030	R-CARBON - 1/4W 100-J	
R5A58	**103P464080**	**R-METAL - 1/4W 9.1K-F**	
R5A59	**103P461070**	**R-METAL - 1/4W 470-F**	
R5A60	**103P464000**	**R-METAL - 1/4W 4.3K-F**	
R5A61	**103P465010**	**R-METAL - 1/4W 12K-F**	
R5A62	103P711070	R-CARBON - 1/4W 220-J	
R5A63	103P466080	R-METAL - 1/4W 62K-F	
R5A64	103P712010	R-CARBON - 1/4W 470-J	
R5A65	**103P141030**	**R-CARBON - 1/2W 100-J**	
R5A66	**103P466010**	**R-METAL - 1/4W 33K-F**	
R5A67	**103P465080**	**R-METAL - 1/4W 24K-F**	
R5A68	**103P463050**	**R-METAL - 1/4W 2.7K-F**	
R5A69	**103P462010**	**R-METAL - 1/4W 680-F**	
R5A70	**103P463040**	**R-METAL - 1/4W 2.4K-F**	
R5A71	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A72	**103P463050**	**R-METAL - 1/4W 2.7K-F**	
R5A73	**103P714050**	**R-CARBON - 1/4W 47K-J**	
R5A74	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A75	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A76	**103P713070**	**R-CARBON - 1/4W 10K-J**	
R5A77	103P711090	R-CARBON - 1/4W 330-J	
R5A78	**103P714010**	**R-CARBON - 1/4W 22K-J**	
R5A79	**103P713030**	**R-CARBON - 1/4W 4.7K-J**	

Ref #	Part #	Part Name & Description	[#]
R5A80	109P175010	R-WIRE - 2W 0.12-J	
R5A81	103P711030	R-CARBON - 1/4W 100-J	
R5A82	**103P370090**	**R-FUSE - 1/4W 47-J**	
R5A83	**103P464070**	**R-METAL - 1/4W 8.2K-F**	
R5A84	**103P464070**	**R-METAL - 1/4W 8.2K-F**	
R5A85	103P710070	R-CARBON - 1/4W 33-J	
R5A86	103P142060	R-CARBON - 1/2W 1.2K-J	
R5A87	103P711030	R-CARBON - 1/4W 100-J	
R5A88	103P464000	R-METAL - 1/4W 4.3K-F	
R5A89	103P463050	R-METAL - 1/4W 2.7K-F	
R5A90	**103P711060**	**R-CARBON - 1/4W 180-J**	
R5A91	103P467030	R-METAL - 1/4W 100K-F	
R5A92	103P465070	R-METAL - 1/4W 22K-F	
R5A93	**103P140090**	**R-CARBON - 1/2W 47-J**	
R5A94	103C390070	R-METAL-P - 3W 33-J	
R5A95	**103P714030**	**R-CARBON - 1/4W 33K-J**	
R5A96	103P466080	R-METAL - 1/4W 62K-F	
R5A97	103P142040	R-CARBON - 1/2W 820-J	
R5A98	103C198010	R-METAL - 3W 1.2-J	
R5A99	103P714090	R-CARBON - 1/4W 100K-J	
R5B01	103P714030	R-CARBON - 1/4W 33K-J	
R5B02	103P714090	R-CARBON - 1/4W 100K-J	
R5B03	103P712060	R-CARBON - 1/4W 1.2K-J	
R5B04	103P711030	R-CARBON - 1/4W 100-J	
R5H01	103P712050	R-CARBON - 1/4W 1K-J	
R5H02	103P758000	R-FUSE - 1/4W 1-J	
R5H03	103P714030	R-CARBON - 1/4W 33K-J	
R5H04	103P463060	R-METAL - 1/4W 3K-F	
R5H07	103P461060	R-METAL - 1/4W 430-F	
R5H08	103P711030	R-CARBON - 1/4W 100-J	
R5H09	103P711010	R-CARBON - 1/4W 68-J	
R5H10	103P710090	R-CARBON - 1/4W 47-J	
R5H11	103P712020	R-CARBON - 1/4W 560-J	
R5H12	103P712020	R-CARBON - 1/4W 560-J	
R5H13	103P712020	R-CARBON - 1/4W 560-J	
R5H14	103P710090	R-CARBON - 1/4W 47-J	
R5H15	103P710090	R-CARBON - 1/4W 47-J	
R5H16	103P710020	R-CARBON - 1/4W 12-J	
R5H17	103P710020	R-CARBON - 1/4W 12-J	
R5H47	**103C172010**	**R-METAL - 1W 470-J**	
R5H48	103P712060	R-CARBON - 1/4W 1.2K-J	
R5H49	103P714070	R-CARBON - 1/4W 68K-J	
R5H50	103P714090	R-CARBON - 1/4W 100K-J	
R5H51	103P712060	R-CARBON - 1/4W 1.2K-J	
R5H55	103P140070	R-CARBON - 1/2W 33-J	
R5H56	103P140070	R-CARBON - 1/2W 33-J	
R5H58	103P148000	R-CARBON - 1/2W 1-J	
R5H59	103C191050	R-METAL - 3W 150-J	
R5H60	103C178080	R-METAL - 1W 4.7-J	
R5H67	103P148000	R-CARBON - 1/2W 1-J	
R5K01	109P174030	R-CARBON - 1/2W 10K-J	
R5K02	103P412050	R-CARBON - 1/4W 1K-J	
R5K03	103P145000	R-CARBON - 1/2W 120K-J	
R5K04	103P144090	R-CARBON - 1/2W 100K-J	
R5K05	103P145000	R-CARBON - 1/2W 120K-J	
R5K06	103P144090	R-CARBON - 1/2W 100K-J	
R5K07	103P145000	R-CARBON - 1/2W 120K-J	
R5K08	103P144090	R-CARBON - 1/2W 100K-J	
R5K09	**103P762020**	**R-FUSE - 1/2W 560-J**	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
R5K10	103P711010	R-CARBON - 1/4W 68-J	
R5K11	103P711090	R-CARBON - 1/4W 330-J	
R5K12	**103P760060**	**R-FUSE - 1/2W 27-J**	
R5K20	103P463060	R-METAL - 1/4W 3K-F	
R5K21	103P465000	R-METAL - 1/4W 2.4K-F	
R5K22	103P145030	R-CARBON - 1/2W 220K-J	
R5K23	103P145030	R-CARBON - 1/2W 220K-J	
R5K24	103P145030	R-CARBON - 1/2W 220K-J	
R5K25	103P713040	R-CARBON - 1/4W 5.6K-J	
R5K31	103P711030	R-CARBON - 1/4W 100-J	
R5K32	103P466020	R-METAL - 1/4W 2.4K-F	
R5K33	103P465060	R-METAL - 1/4W 20K-F	
R5K34	**103P760060**	**R-FUSE - 1/2W 27-J**	
R5K46	103P712010	R-CARBON - 1/4W 470-J	
R5K50	**103P762050**	**R-FUSE - 1/2W 1K-J**	
R6B01	103P711030	R-CARBON - 1/4W 100-J	
R6B02	103P713090	R-CARBON - 1/4W 15K-J	
R6B03	103P463050	R-METAL - 1/4W 2.7K-F	
R6B04	103P462080	R-METAL - 1/4W 1.3K-F	
R6B05	103P711070	R-CARBON - 1/4W 220-J	
R6B06	103P462030	R-METAL - 1/4W 820-F	
R6B07	103P711030	R-CARBON - 1/4W 100-J	
R6B08	103P719050	R-CARBON - 1/4W 0OHM (MAX 3A)	
R6B09	103P711030	R-CARBON - 1/4W 100-J	
R6B10	103P713030	R-CARBON - 1/4W 4.7K-J	
R6B11	**103C194020**	**R-METAL - 3W 27K-J**	
R6B12	103P461050	R-METAL - 1/4W 390-F	
R6B13	103P331030	R-CARBON - 1/4W 100-J	
R6B16	103P411000	R-CARBON - 1/4W 56-J	
R6B17	109P174010	R-CARBON - 1/2W 220-J	
R6B20	109P174020	R-CARBON - 1/2W 2.2K-J	
R6B21	103P467030	R-METAL - 1/4W 100K-F	
R6B22	103P467030	R-METAL - 1/4W 100K-F	
R6B23	103P711030	R-CARBON - 1/4W 100-J	
R6B24	103P713030	R-CARBON - 1/4W 4.7K-J	
R6B25	103P711030	R-CARBON - 1/4W 100-J	
R6B26	103P413050	R-CARBON - 1/4W 6.8K-J	
R6B27	103P711030	R-CARBON - 1/4W 100-J	
R6B31	103P142060	R-CARBON - 1/2W 1.2K-J	
R6G01	103P711030	R-CARBON - 1/4W 100-J	
R6G02	103P713090	R-CARBON - 1/4W 15K-J	
R6G03	103P463050	R-METAL - 1/4W 2.7K-F	
R6G04	103P462080	R-METAL - 1/4W 1.3K-F	
R6G05	103P410050	R-CARBON - 1/4W 22-J	
R6G06	103P462030	R-METAL - 1/4W 820-F	
R6G07	103P711030	R-CARBON - 1/4W 100-J	
R6G08	103P719050	R-CARBON - 1/4W 0OHM (MAX 3A)	
R6G09	103P711030	R-CARBON - 1/4W 100-J	
R6G10	103P713030	R-CARBON - 1/4W 4.7K-J	
R6G11	**103C194020**	**R-METAL - 3W 27K-J**	
R6G13	103P331030	R-CARBON - 1/4W 100-J	
R6G16	103P411000	R-CARBON - 1/4W 56-J	
R6G17	109P174010	R-CARBON - 1/2W 220-J	
R6G20	109P174020	R-CARBON - 1/2W 2.2K-J	
R6G21	103P467030	R-METAL - 1/4W 100K-F	
R6G22	103P467030	R-METAL - 1/4W 100K-F	
R6G23	103P711030	R-CARBON - 1/4W 100-J	
R6G31	103P142060	R-CARBON - 1/2W 1.2K-J	
R6R01	103P711030	R-CARBON - 1/4W 100-J	
R6R02	103P713090	R-CARBON - 1/4W 15K-J	
R6R03	103P463050	R-METAL - 1/4W 2.7K-F	
R6R04	103P462080	R-METAL - 1/4W 1.3K-F	
R6R05	103P711070	R-CARBON - 1/4W 220-J	
R6R06	103P462030	R-METAL - 1/4W 820-F	
R6R07	103P711030	R-CARBON - 1/4W 100-J	
R6R08	103P719050	R-CARBON - 1/4W 0OHM (MAX 3A)	
R6R09	103P711030	R-CARBON - 1/4W 100-J	
R6R10	103P713030	R-CARBON - 1/4W 4.7K-J	
R6R11	**103C194020**	**R-METAL - 3W 27K-J**	
R6R13	103P331030	R-CARBON - 1/4W 100-J	
R6R16	103P411000	R-CARBON - 1/4W 56-J	
R6R17	109P174010	R-CARBON - 1/2W 220-J	
R6R20	109P174020	R-CARBON - 1/2W 2.2K-J	
R6R21	103P467030	R-METAL - 1/4W 100K-F	
R6R22	103P467030	R-METAL - 1/4W 100K-F	
R6R23	103P711030	R-CARBON - 1/4W 100-J	
R6R31	103P142060	R-CARBON - 1/2W 1.2K-J	
R7K01	103P712050	R-CARBON - 1/4W 1K-J	
R7K02	103P713010	R-CARBON - 1/4W 3.3K-J	
R7L26	103P462090	R-METAL - 1/4W 1.5K-F	
R7L27	103P463030	R-METAL - 1/4W 2.2K-F	
R7L28	103P463070	R-METAL - 1/4W 3.3K-F	
R7L29	103P464030	R-METAL - 1/4W 5.6K-F	
R7L30	103P465010	R-METAL - 1/4W 12K-F	
R7L31	103P466010	R-METAL - 1/4W 33K-F	
R7L32	103P466070	R-METAL - 1/4W 56K-F	
R8C02	103P463070	R-METAL - 1/4W 3.3K-F	
R8C03	103P711090	R-CARBON - 1/4W 330-J	
R8C05	103C288070	R-METAL-CP - 2W 3.9-J	
R8C06	103C288070	R-METAL-CP - 2W 3.9-J	
R8C07	103C391050	R-METAL-P - 3W 150-J	
R8C10	103P463070	R-METAL - 1/4W 3.3K-F	
R8C11	103P711090	R-CARBON - 1/4W 330-J	
R8C13	103C288070	R-METAL-CP - 2W 3.9-J	
R8C14	103C288070	R-METAL-CP - 2W 3.9-J	
R8C15	103C391050	R-METAL-P - 3W 150-J	
R8C18	103P463070	R-METAL - 1/4W 3.3K-F	
R8C19	103P711090	R-CARBON - 1/4W 330-J	
R8C21	103C288070	R-METAL-CP - 2W 3.9-J	
R8C22	103C288070	R-METAL-CP - 2W 3.9-J	
R8C23	103C391050	R-METAL-P - 3W 150-J	
R8C26	103P463070	R-METAL - 1/4W 3.3K-F	
R8C27	103P711090	R-CARBON - 1/4W 330-J	
R8C29	103C288070	R-METAL-CP - 2W 3.9-J	
R8C30	103C288070	R-METAL-CP - 2W 3.9-J	
R8C31	103C391050	R-METAL-P - 3W 150-J	
R8C34	103P463070	R-METAL - 1/4W 3.3K-F	
R8C35	103P711090	R-CARBON - 1/4W 330-J	
R8C37	103C288070	R-METAL-CP - 2W 3.9-J	
R8C38	103C288070	R-METAL-CP - 2W 3.9-J	
R8C39	103C391050	R-METAL-P - 3W 150-J	
R8C42	103P463070	R-METAL - 1/4W 3.3K-F	
R8C43	103P711090	R-CARBON - 1/4W 330-J	
R8C45	103C288070	R-METAL-CP - 2W 3.9-J	
R8C46	103C288070	R-METAL-CP - 2W 3.9-J	
R8C47	103C391050	R-METAL-P - 3W 150-J	
R8C60	103C191090	R-METAL - 3W 330-J	
R8C61	103C191090	R-METAL - 3W 330-J	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
R8C62	103P713010	R-CARBON - 1/4W 3.3K-J	
R8C63	103P713010	R-CARBON - 1/4W 3.3K-J	
R8C64	103P713010	R-CARBON - 1/4W 3.3K-J	
R8C65	103P713010	R-CARBON - 1/4W 3.3K-J	
R8C66	103P713010	R-CARBON - 1/4W 3.3K-J	
R8C67	103P713010	R-CARBON - 1/4W 3.3K-J	
R9A02	102P084000	R-CEMENT-WIRE - 15W 2.2-K	
R9A03	**109P173010**	**R-CARBON - 1/2W 1M-J**	
R9A05	**109P173010**	**R-CARBON - 1/2W 1M-J**	
R9A06	**109P173010**	**R-CARBON - 1/2W 1M-J**	
R9A09	103P145050	R-CARBON - 1/2W 330K-J	
R9A10	103P714020	R-CARBON - 1/4W 27K-J	
R9A11	103P145050	R-CARBON - 1/2W 330K-J	
R9A12	103P713070	R-CARBON - 1/4W 10K-J	
R9A13	103P713000	R-CARBON - 1/4W 2.7K-J	
R9A20	103C181020	R-METAL - 2W 82-J	
R9A21	103P712050	R-CARBON - 1/4W 1K-J	
R9A23	103P710090	R-CARBON - 1/4W 47-J	
R9A24	103P142070	R-CARBON - 1/2W 1.5K-J	
R9A29	103P713070	R-CARBON - 1/4W 10K-J	
R9A51	103P715050	R-CARBON - 1/4W 330K-J	
R9A52	103P710090	R-CARBON - 1/4W 47-J	
R9A53	103P712030	R-CARBON - 1/4W 680-J	
R9A54	109P175020	R-WIRE - 2W 0.15-J	
R9A55	109P175010	R-WIRE - 2W 0.12-J	
R9A57	103P712090	R-CARBON - 1/4W 2.2K-J	
R9A58	103P145030	R-CARBON - 1/2W 220K-J	
R9A59	103P710070	R-CARBON - 1/4W 33-J	
R9A61	103P713040	R-CARBON - 1/4W 5.6K-J	
R9A62	103P713070	R-CARBON - 1/4W 10K-J	
R9A63	103P713020	R-CARBON - 1/4W 3.9K-J	
R9A66	103P712070	R-CARBON - 1/4W 1.5K-J	
R9A67	103P710050	R-CARBON - 1/4W 22-J	
R9A68	103C180050	R-METAL - 2W 22-J	
R9A69	103C180050	R-METAL - 2W 22-J	
R9A70	109D151090	R-CARBON - 1/4W 33-J	
R9A71	103P145030	R-CARBON - 1/2W 220K-J	
R9A73	103P412050	R-CARBON - 1/4W 1K-J	
R9A74	103P144040	R-CARBON - 1/2W 39K-J	
R9A80	103C193060	R-METAL - 3W 8.2K-J	
R9A81	103P142090	R-CARBON - 1/2W 2.2K-J	
R9A82	103P465050	R-METAL - 1/4W 18K-F	
R9A83	103P464010	R-METAL - 1/4W 4.7K-F	
R9A84	103P713070	R-CARBON - 1/4W 10K-J	
R9B01	103P711030	R-CARBON - 1/4W 100-J	
R9B02	103P714010	R-CARBON - 1/4W 22K-J	
R9B03	103P714050	R-CARBON - 1/4W 47K-J	
R9B04	103P714050	R-CARBON - 1/4W 47K-J	
R9B05	103P714090	R-CARBON - 1/4W 100K-J	
R9B06	103P714090	R-CARBON - 1/4W 100K-J	
R9B07	103P714010	R-CARBON - 1/4W 22K-J	
R9B08	109D151030	R-CARBON - 1/4W 4.7-J	
R9B09	109D151030	R-CARBON - 1/4W 4.7-J	
R9B10	**103D464030**	**R-METAL - 1/4W 68-F**	
R9B11	**103P461070**	**R-METAL - 1/4W 470-F**	
R9C31	103C197080	R-METAL - 3W 0.68-J	
R9C32	103C197080	R-METAL - 3W 0.68-J	
R9D00	**109P173020**	**R-CARBON - 1/2W 4.7M-J**	

CAPACITORS

CHIP Type Capacitors (Listed by Value)

CHIP Type Capacitors (Listed by Value)

Part No.	Value	Part No.	Value
154P350050	CH50V 3P-C	141P141030	B50V 2200P-K
154P341010	CH50V 10P-C	141P141070	B50V 4700P-K
154P341050	CH50V 15P-J	141P141090	B50V 6800P-K
154P341090	CH50V 22P-J	141P142000	B50V 8200P-K
154P342030	CH50V 33P-J	141P142010	B50V 0.01M-K
154P342070	CH50V 47P-J	141P142030	B50V 0.015M-K
154P340080	CH50V 47P-J	141P142090	B25V 0.047M-K
154P342090	CH50V 56P-J	141P139010	B25V 0.068M-K
154P343010	CH50V 68P-J	141P143010	B25V 0.068M-K
154P353000	SL50V 56P-J	141P143020	B16V 0.082M-K
154P343030	CH50V 82P-J	141P143030	B16V 0.1M-K
154P343050	CH50V 100P-J	141P143080	F50V 0.01M-Z
154P343070	CH50V 120P-J	141P144020	F25V 0.1M-Z
154P353080	SL50V 120P-J	141P138080	B25V 0.33M-K
154P343090	CH50V 150P-J	141P135010	F25V 0.33M-Z
154P354000	SL50V 150P-J	141P146080	B10V 0.47M-K
154P344030	CH50V 220P-J	141P139090	B16V 0.47M-K
141P140010	B50V 220P-K	141P134070	B16V 1M-K
154P344050	CH50V 270P-J	141P144060	F16V 1M-Z
154P344070	CH50V 330P-J	181P526020	50V 2.2M-M
154P355000	SL50V 390P-J	181P522030	16V 10M-M 105C
154P345010	CH50V 470P-J	181P520010	6.3V 22M-M 105C
154P355020	SL50V 470P-J	181P500030	6.3V 47M-M
141P140050	B50V 470P-K	181P520030	6.3V 47M-M
154P345030	CH25V 560P-J	181P502060	16V 47M-M
141P140090	B50V 1000P-K	181P520040	6.3V 100M-M
154P345090	CH25V 1000P-J	181P528010	4V 220M-M 105C
141P141010	B50V 1500P-K	189P209010	6.3V 220M-M

Conventional Capacitors (By Ref #)

Ref #	Part #	Part Name & Description	[#]
C1A13	181P352040	C-ELEC - 16V 100M-M	
C1A21	181P210040	C-ELEC - 6.3V 100M-M	
C1A24	181P210040	C-ELEC - 6.3V 100M-M	
C1A26	172P262010	C-M-POLY - 50V 0.047M-J	
C1B13	181P352040	C-ELEC - 16V 100M-M	
C1B21	181P210040	C-ELEC - 6.3V 100M-M	
C1B24	181P210040	C-ELEC - 6.3V 100M-M	
C1B26	172P262010	C-M-POLY - 50V 0.047M-J	
C2D73	181P352040	C-ELEC - 16V 100M-M	
C2K00	181P352050	C-ELEC - 16V 220M-M	
C2K06	181P355050	C-ELEC - 50V 10M-M	
C2K08	181P355050	C-ELEC - 50V 10M-M	
C2K09	181P355050	C-ELEC - 50V 10M-M	
C2K11	181P355050	C-ELEC - 50V 10M-M	
C2K12	181P355050	C-ELEC - 50V 10M-M	
C2K14	181P355050	C-ELEC - 50V 10M-M	
C2K15	181P355050	C-ELEC - 50V 10M-M	
C2K16	181P355050	C-ELEC - 50V 10M-M	
C2K17	181P355050	C-ELEC - 50V 10M-M	
C2K18	181P181000	C-ELEC - 10V 330M-M 105C	
C2K27	181P355050	C-ELEC - 50V 10M-M	
C2L01	181P352030	C-ELEC - 16V 47M-M	
C2L06	181P355040	C-ELEC - 50V 4.7M-M	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
C2L12	181P355040	C-ELEC - 50V 4.7M-M	
C2L14	181P351070	C-ELEC - 10V 470M-M	
C2L16	181P210040	C-ELEC - 6.3V 100M-M	
C2L22	181P352030	C-ELEC - 16V 47M-M	
C2L24	181P352030	C-ELEC - 16V 47M-M	
C2LA0	181P351050	C-ELEC - 10V 220M-M	
C2LA6	181P355040	C-ELEC - 50V 4.7M-M	
C2LB1	181P355040	C-ELEC - 50V 4.7M-M	
C2LB3	181P351070	C-ELEC - 10V 470M-M	
C2LB9	181P210040	C-ELEC - 6.3V 100M-M	
C2LC2	181P352030	C-ELEC - 16V 47M-M	
C2LC4	181P352030	C-ELEC - 16V 47M-M	
C2M03	181P352040	C-ELEC - 16V 100M-M	
C2M08	181P352030	C-ELEC - 16V 47M-M	
C2M88	181P355010	C-ELEC - 50V 1M-M	
C2M89	181P219010	C-ELEC - 16V 10M-M	
C2M93	181P350050	C-ELEC - 6.3V 470M-M	
C2M97	181P219010	C-ELEC - 16V 10M-M	
C2MA4	181P352030	C-ELEC - 16V 47M-M	
C2MA6	181P352030	C-ELEC - 16V 47M-M	
C2MC4	181P352030	C-ELEC - 16V 47M-M	
C2MD6	181P210040	C-ELEC - 6.3V 100M-M	
C2N00	181P355000	C-ELEC - 50V 0.47M-M	
C2N01	181P355000	C-ELEC - 50V 0.47M-M	
C2N02	181P355000	C-ELEC - 50V 0.47M-M	
C2N05	181P355000	C-ELEC - 50V 0.47M-M	
C2N06	181P355000	C-ELEC - 50V 0.47M-M	
C2N07	181P355000	C-ELEC - 50V 0.47M-M	
C2N17	181P355000	C-ELEC - 50V 0.47M-M	
C2N18	181P355000	C-ELEC - 50V 0.47M-M	
C2N19	181P355000	C-ELEC - 50V 0.47M-M	
C2N22	181P351050	C-ELEC - 10V 220M-M	
C2N28	181P350060	C-ELEC - 3V 1000M-M	
C2N29	181P350060	C-ELEC - 3V 1000M-M	
C2N33	181P355050	C-ELEC - 50V 10M-M	
C2NA6	181P355050	C-ELEC - 50V 10M-M	
C2NC5	181P355050	C-ELEC - 50V 10M-M	
C2P01	181P355050	C-ELEC - 50V 10M-M	
C2P02	181P351050	C-ELEC - 10V 220M-M	
C2P04	181P351050	C-ELEC - 10V 220M-M	
C2P08	181P352030	C-ELEC - 16V 47M-M	
C2P12	181P355050	C-ELEC - 50V 10M-M	
C2S00	181P355000	C-ELEC - 50V 0.47M-M	
C2S01	181P355000	C-ELEC - 50V 0.47M-M	
C2S02	181P355000	C-ELEC - 50V 0.47M-M	
C2S05	181P355000	C-ELEC - 50V 0.47M-M	
C2S06	181P355000	C-ELEC - 50V 0.47M-M	
C2S07	181P355000	C-ELEC - 50V 0.47M-M	
C2S10	181P350060	C-ELEC - 3V 1000M-M	
C2S18	181P355000	C-ELEC - 50V 0.47M-M	
C2S19	181P355000	C-ELEC - 50V 0.47M-M	
C2S20	181P355000	C-ELEC - 50V 0.47M-M	
C2S22	181P350060	C-ELEC - 3V 1000M-M	
C2S29	181P350060	C-ELEC - 3V 1000M-M	
C2V04	181P359060	C-ELEC - CE50V 0.1M-M	
C2V05	181P359060	C-ELEC - CE50V 0.1M-M	
C2V06	181P359060	C-ELEC - CE50V 0.1M-M	
C2V08	181P359060	C-ELEC - CE50V 0.1M-M	
C2V09	181P359060	C-ELEC - CE50V 0.1M-M	
C2V10	181P359060	C-ELEC - CE50V 0.1M-M	

Ref #	Part #	Part Name & Description	[#]
C2V14	181P352040	C-ELEC - 16V 100M-M	
C2V17	181P355040	C-ELEC - 50V 4.7M-M	
C2V19	181P352040	C-ELEC - 16V 100M-M	
C2V29	181P351070	C-ELEC - 10V 470M-M	
C2V30	181P352030	C-ELEC - 16V 47M-M	
C2V32	181P355000	C-ELEC - 50V 0.47M-M	
C2V48	172P166030	C-TF - 50V 0.1M-J	
C2V49	172P166030	C-TF - 50V 0.1M-J	
C2V55	181P351070	C-ELEC - 10V 470M-M	
C2V57	181P355060	C-ELEC - 50V 22M-M	
C2V61	181P352040	C-ELEC - 16V 100M-M	
C2W02	181P552070	C-ELEC - 16V 1000U	
C2W05	181P352030	C-ELEC - 16V 47M-M	
C2W09	181P352030	C-ELEC - 16V 47M-M	
C2W14	181P352030	C-ELEC - 16V 47M-M	
C2W52	181P352030	C-ELEC - 16V 47M-M	
C2W62	181P352030	C-ELEC - 16V 47M-M	
C2W72	181P352030	C-ELEC - 16V 47M-M	
C2Y09	181P352030	C-ELEC - 16V 47M-M	
C2Y50	181P352040	C-ELEC - 16V 100M-M	
C2Y51	181P352040	C-ELEC - 16V 100M-M	
C3A14	181P355050	C-ELEC - 50V 10M-M	
C3A20	181P355050	C-ELEC - 50V 10M-M	
C3A21	181P355050	C-ELEC - 50V 10M-M	
C3A28	181P355050	C-ELEC - 50V 10M-M	
C3A29	181P355050	C-ELEC - 50V 10M-M	
C3A32	181P355050	C-ELEC - 50V 10M-M	
C3A33	181P355050	C-ELEC - 50V 10M-M	
C3A34	181P355030	C-ELEC - 50V 3.3M-M	
C3A46	181P355050	C-ELEC - 50V 10M-M	
C3A49	181P355050	C-ELEC - 50V 10M-M	
C3E01	**181P354050**	**C-ELEC - 35V 47M-M**	
C3E02	181P355010	C-ELEC - 50V 1M-M	
C3E03	172P331010	C-POLY - 50V 6800P-J	
C3E04	181P355010	C-ELEC - 50V 1M-M	
C3E05	172P331010	C-POLY - 50V 6800P-J	
C3E06	181P355050	C-ELEC - 50V 10M-M	
C3E07	181P552080	C-ELEC - 25V 2200M-M	
C3E09	172P262050	C-M-POLY - 50V 0.1M-J	
C3E11	172P262050	C-M-POLY - 50V 0.1M-J	
C3E12	172P262050	C-M-POLY - 50V 0.1M-J	
C3E14	172P262050	C-M-POLY - 50V 0.1M-J	
C3K00	181P122070	C-ELEC-NP - 25V 10M-M	
C3K01	181P355050	C-ELEC - 50V 10M-M	
C3K04	181P122070	C-ELEC-NP - 25V 10M-M	
C3K05	181P355050	C-ELEC - 50V 10M-M	
C3K10	181P355010	C-ELEC - 50V 1M-M	
C3K11	181P355010	C-ELEC - 50V 1M-M	
C3K12	181P355010	C-ELEC - 50V 1M-M	
C3K13	181P355010	C-ELEC - 50V 1M-M	
C3K14	181P355010	C-ELEC - 50V 1M-M	
C3K15	181P355010	C-ELEC - 50V 1M-M	
C3K16	181P355010	C-ELEC - 50V 1M-M	
C3K17	181P355010	C-ELEC - 50V 1M-M	
C3K18	181P355010	C-ELEC - 50V 1M-M	
C3K19	181P355010	C-ELEC - 50V 1M-M	
C3K20	181P355010	C-ELEC - 50V 1M-M	
C3K21	181P355010	C-ELEC - 50V 1M-M	
C3K22	181P355010	C-ELEC - 50V 1M-M	
C3K23	181P355010	C-ELEC - 50V 1M-M	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
C3K25	181P352030	C-ELEC - 16V 47M-M	
C4B01	**172P261030**	**C-M-POLY - 50V 0.01M-J**	
C4B02	181P186050	C-ELEC - 35V 1000M-M 105C	
C4B03	172P383030	C-M-POLY - 100V 0.47M-K	
C4B04	181P354060	C-ELEC - 35V 100M-M	
C4B05	142P021070	C-CER - 50V 4700P-J	
C4B06	172P330090	C-POLY - 50V 4700P-J	
C4B07	172P383030	C-M-POLY - 100V 0.47M-K	
C4B08	172P263070	C-M-POLY - 50V 1.0M-J	
C4B09	181P355060	C-ELEC - 50V 22M-M	
C4B10	181P354050	C-ELEC - 35V 47M-M	
C4B11	181P183050	C-ELEC - 25V 2200M-M 105C	
C5A01	**181P354050**	**C-ELEC - 35V 47M-M**	
C5A02	**181P355050**	**C-ELEC - 50V 10M-M**	
C5A03	**142P020090**	**C-CER - B50V 1000P-K**	
C5A04	172P263010	C-M-POLY - 50V 0.33M-J	
C5A05	172P262010	C-M-POLY - 50V 0.047M-J	
C5A10	181P191000	C-ELEC - 160V 22M-M/Q	
C5A12	181P554080	C-ELEC - 35V 470M-M	
C5A15	181P354060	C-ELEC - 35V 100M-M	
C5A16	142P023080	C-CER - BF50V 0.01M-Z	
C5A17	142P020090	C-CER - B50V 1000P-K	
C5A21	172P262050	C-M-POLY - 50V 0.1M-J	
C5A22	181P355050	C-ELEC - 50V 10M-M	
C5A23	181P355050	C-ELEC - 50V 10M-M	
C5A31	172P581050	C-M-PLA-PP - 1800VHP 3900P-J-OR-H	
C5A32	172P581050	C-M-PLA-PP - 1800VHP 3900P-J-OR-H	
C5A33	181P781000	C-ELEC - 160V 100M-M 105C	
C5A34	154P262050	C-CER - R2KV 560P-K	
C5A35	142P012010	C-CER - B500V 4700P-K	
C5A36	172P524010	C-M-POLY - 250V 2.2M-J	
C5A37	172P436010	C-M-PLA-PP - 250V 0.33M-J	
C5A38	172P436010	C-M-PLA-PP - 250V 0.33M-J	
C5A39	142P011030	C-CER - B500V 1000P-K	
C5A40	142P011000	C-CER - B500V 560P-K	
C5A41	181P552070	C-ELEC - 16V 1000U	
C5A42	181P352030	C-ELEC - 16V 47M-M	
C5A43	181P190050	C-ELEC - 160V 1M-M/Q	
C5A44	142P024060	C-CER - BF50V 0.1M-Z	
C5A45	181P183040	C-ELEC - 25V 470M-M 105C	
C5A50	142P024060	C-CER - BF50V 0.1M-Z	
C5A51	154P260010	C-CER - R1KV 220P-K	
C5A52	**172P580090**	**C-M-PLA-PP - 1800V 2200P-J**	
C5A55	172P088060	C-PLA-PP - 630V 6800P-J	
C5A56	181P355080	C-ELEC - 50V 47M-M	
C5A57	**172P262070**	**C-M-POLY - 50V 0.15M-J**	
C5A58	142P024060	C-CER - BF50V 0.1M-Z	
C5A59	142P023080	C-CER - BF50V 0.01M-Z	
C5A60	**172P262050**	**C-M-POLY - 50V 0.1M-J**	
C5A61	**181P355040**	**C-ELEC - 50V 4.7M-M**	
C5A62	142P023080	C-CER - BF50V 0.01M-Z	
C5A63	142P023080	C-CER - BF50V 0.01M-Z	
C5A64	181P352040	C-ELEC - 16V 100M-M	
C5A65	181P355050	C-ELEC - 50V 10M-M	
C5A66	142P024060	C-CER - BF50V 0.1M-Z	
C5A67	142P023080	C-CER - BF50V 0.01M-Z	
C5A68	181P123070	C-ELEC-NP - 50V 0.47M-M	
C5A69	142P024060	C-CER - BF50V 0.1M-Z	
C5A70	**172P264010**	**C-M-POLY - 50V 2.2M-J**	
C5A71	**172P262060**	**C-M-POLY - 50V 0.12M-J**	

Ref #	Part #	Part Name & Description	[#]
C5A72	181P355010	C-ELEC - 50V 1M-M	
C5A73	**172P264010**	**C-M-POLY - 50V 2.2M-J**	
C5A80	181P355050	C-ELEC - 50V 10M-M	
C5H01	181P184040	C-ELEC - 35V 330M-M 105C	
C5H02	142P023080	C-CER - BF50V 0.01M-Z	
C5H03	142P023080	C-CER - BF50V 0.01M-Z	
C5H04	155P238090	C-CER - CH50V 270P-J	
C5H16	172P186030	C-PLA-PP - 200V 0.01M-K	
C5H17	172P261030	C-M-POLY - 50V 0.01M-J	
C5H19	181P183010	C-ELEC - 25V 100M-M	
C5H20	181P352040	C-ELEC - 16V 100M-M	
C5H21	181P780060	C-ELEC - 160V 10M-M	
C5H24	181P781000	C-ELEC - 160V 100M-M 105C	
C5K00	189P203010	C-M-PLA-PP - 1500VHP 0.015M-J	
C5K01	189P203010	C-M-PLA-PP - 1500VHP 0.015M-J	
C5K02	189D125040	C-ELEC - 450V 4.7M-M 105C	
C5K03	142P020050	C-CER - B50V 470P-K	
C5K05	181P354050	C-ELEC - 35V 47M-M	
C5K12	181P352040	C-ELEC - 16V 100M-M	
C5K14	181P354050	C-ELEC - 35V 47M-M	
C5K15	181P781000	C-ELEC - 160V 100M-M 105C	
C5K16	172P331010	C-POLY - 50V 6800P-J	
C6B01	**154P400040**	**C-CER - B1KV 680P-K**	
C6B02	181P195050	C-ELEC - 350V 10M-M/Q	
C6B03	155P232030	C-CER - CH50V 33P-J	
C6B04	142P023080	C-CER - BF50V 0.01M-Z	
C6B05	181P352030	C-ELEC - 16V 47M-M	
C6B06	172P263030	C-M-POLY - 50V 0.47M-J	
C6B08	142P020030	C-CER - B50V 330P-K	
C6B09	142P023080	C-CER - BF50V 0.01M-Z	
C6B10	142P012050	C-CER - B500V 0.01M-K	
C6B11	154P264000	C-CER - R3.15KV 150P-K	
C6B12	155P239040	C-CER - CH50V 100P-J	
C6B13	155P231090	C-CER - CH50V 22P-J	
C6B14	154P405000	C-CER - B3KV 1000P-K	
C6B50	154P405000	C-CER - B3KV 1000P-K	
C6B51	154P400040	C-CER - B1KV 680P-K	
C6G01	**154P400040**	**C-CER - B1KV 680P-K**	
C6G02	181P195050	C-ELEC - 350V 10M-M/Q	
C6G03	155P232030	C-CER - CH50V 33P-J	
C6G04	142P023080	C-CER - BF50V 0.01M-Z	
C6G05	181P352030	C-ELEC - 16V 47M-M	
C6G06	172P263030	C-M-POLY - 50V 0.47M-J	
C6G09	142P023080	C-CER - BF50V 0.01M-Z	
C6G10	142P012050	C-CER - B500V 0.01M-K	
C6G11	154P264000	C-CER - R3.15KV 150P-K	
C6G12	155P239040	C-CER - CH50V 100P-J	
C6G13	155P231090	C-CER - CH50V 22P-J	
C6G14	154P405000	C-CER - B3KV 1000P-K	
C6G50	154P405000	C-CER - B3KV 1000P-K	
C6G51	154P400040	C-CER - B1KV 680P-K	
C6R01	**154P400040**	**C-CER - B1KV 680P-K**	
C6R02	181P195050	C-ELEC - 350V 10M-M/Q	
C6R03	155P232030	C-CER - CH50V 33P-J	
C6R04	142P023080	C-CER - BF50V 0.01M-Z	
C6R05	181P352030	C-ELEC - 16V 47M-M	
C6R06	172P263030	C-M-POLY - 50V 0.47M-J	
C6R09	142P023080	C-CER - BF50V 0.01M-Z	
C6R10	142P012050	C-CER - B500V 0.01M-K	
C6R11	154P264000	C-CER - R3.15KV 150P-K	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
C6R12	155P239040	C-CER - CH50V 100P-J	
C6R13	155P232050	C-CER - CH50V 39P-J	
C6R14	154P405000	C-CER - B3KV 1000P-K	
C6R50	154P405000	C-CER - B3KV 1000P-K	
C7A00	**154P355020**	**C-CER-CHIP - SL50V 470P-J**	
C7A03	181P355010	C-ELEC - 50V 1M-M	
C7A16	181P352030	C-ELEC - 16V 47M-M	
C7A62	181P352030	C-ELEC - 16V 47M-M	
C7A99	181P352030	C-ELEC - 16V 47M-M	
C7C30	181P354040	C-ELEC - 50V 10M-M	
C7K01	181P352030	C-ELEC - 16V 47M-M	
C7V02	181P352030	C-ELEC - 16V 47M-M	
C7V13	181P352030	C-ELEC - 16V 47M-M	
C8C03	181P358000	C-ELEC - 35V 1000M-M	
C8C04	142P024060	C-CER - BF50V 0.1M-Z	
C8C05	181P358000	C-ELEC - 35V 1000M-M	
C8C06	142P024060	C-CER - BF50V 0.1M-Z	
C8C09	155P233090	C-CER - CH50V 150P-J	
C8C11	155P233090	C-CER - CH50V 150P-J	
C8C14	155P233090	C-CER - CH50V 150P-J	
C8C18	181P358000	C-ELEC - 35V 1000M-M	
C8C19	142P024060	C-CER - BF50V 0.1M-Z	
C8C20	181P358000	C-ELEC - 35V 1000M-M	
C8C21	142P024060	C-CER - BF50V 0.1M-Z	
C8C23	155P233090	C-CER - CH50V 150P-J	
C8C26	155P233090	C-CER - CH50V 150P-J	
C8C29	155P233090	C-CER - CH50V 150P-J	
C8C43	142P020080	C-CER - B50V 820P-K	
C8C44	142P020080	C-CER - B50V 820P-K	
C8C45	142P020080	C-CER - B50V 820P-K	
C8C46	142P020080	C-CER - B50V 820P-K	
C8C47	142P020080	C-CER - B50V 820P-K	
C8C48	142P020080	C-CER - B50V 820P-K	
C8C49	155P231050	C-CER - CH50V 15P-J	
C8C50	155P231050	C-CER - CH50V 15P-J	
C8D16	181P352030	C-ELEC - 16V 47M-M	
C8D19	181P352030	C-ELEC - 16V 47M-M	
C8D20	181P352030	C-ELEC - 16V 47M-M	
C8D21	181P352030	C-ELEC - 16V 47M-M	
C8D22	181P352030	C-ELEC - 16V 47M-M	
C8D29	181P355010	C-ELEC - 50V 1M-M	
C8D30	181P352030	C-ELEC - 16V 47M-M	
C8D31	181P352030	C-ELEC - 16V 47M-M	
C8D33	181P352030	C-ELEC - 16V 47M-M	
C8D39	181P352030	C-ELEC - 16V 47M-M	
C8D40	181P352030	C-ELEC - 16V 47M-M	
C8E01	181P352030	C-ELEC - 16V 47M-M	
C8E03	181P352030	C-ELEC - 16V 47M-M	
C8E05	181P352030	C-ELEC - 16V 47M-M	
C8E07	181P352030	C-ELEC - 16V 47M-M	
C8E09	181P352030	C-ELEC - 16V 47M-M	
C8E12	181P352030	C-ELEC - 16V 47M-M	
C8E14	181P352030	C-ELEC - 16V 47M-M	
C8E16	181P352030	C-ELEC - 16V 47M-M	
C8G00	181P352030	C-ELEC - 16V 47M-M	
C8G03	181P352020	C-ELEC - 16V 33M-M	
C8G05	181P352030	C-ELEC - 16V 47M-M	
C8G06	181P352030	C-ELEC - 16V 47M-M	
C9A05	**189P185070**	**C-CER - AC250V E1000P-M**	
C9A06	**189P185070**	**C-CER - AC250V E1000P-M**	

Ref #	Part #	Part Name & Description	[#]
C9A07	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
C9A08	**189P185090**	**C-CER - AC250V E2200P-M**	
C9A09	**189P185090**	**C-CER - AC250V E2200P-M**	
C9A10	**189P185090**	**C-CER - AC250V E2200P-M**	
C9A11	**189P185090**	**C-CER - AC250V E2200P-M**	
C9A13	**189P152070**	**C-M-POLY - 250VAC 0.01M-M**	
C9A14	**189P152070**	**C-M-POLY - 250VAC 0.01M-M**	
C9A15	172P262050	C-M-POLY - 50V 0.1M-J	
C9A22	181P785060	C-ELEC - 350V 22M-M 105C	
C9A27	154P270050	C-CER - SL1KV 22P-J	
C9A28	172P262050	C-M-POLY - 50V 0.1M-J	
C9A29	142P010090	C-CER - B500V 470P-K	
C9A33	181P735020	C-ELEC - 25V 1000M-M 105C	
C9A34	181P352040	C-ELEC - 16V 100M-M	
C9A35	142P024060	C-CER - BF50V 0.1M-Z	
C9A39	181P355000	C-ELEC - 50V 0.47M-M	
C9A50	**142P020050**	**C-CER - B50V 470P-K**	
C9A51	**181P554060**	**C-ELEC - 35V 220M-M**	
C9A52	154P400070	C-CER - B1KV 2200P-K	
C9A53	185D122050	C-ELEC - H200V 1000M-M 105C	
C9A54	154P260080	C-CER - R1KV 3300P-K	
C9A55	172P339070	C-POLY - 50V 560P-J	
C9A56	181P355080	C-ELEC - 50V 47M-M	
C9A57	142P010090	C-CER - B500V 470P-K	
C9A58	185D163020	C-ELEC - H50V 4700M-M 105C	
C9A59	185D122050	C-ELEC - H200V 1000M-M 105C	
C9A60	154P400030	C-CER - B1KV 470P-K	
C9A61	142P010090	C-CER - B500V 470P-K	
C9A62	189D183010	C-ELEC - 400V 100M-KC	
C9A63	185D063030	C-ELEC - H180V 820M-M 105C	
C9A64	181P780070	C-ELEC - 160V 22M-M 105C	
C9A65	181P194000	C-ELEC - 250V 10M-M/Q	
C9A66	142P012050	C-CER - B500V 0.01M-K	
C9A68	142P010090	C-CER - B500V 470P-K	
C9A69	181P736070	C-ELEC - 35V 330M-M	
C9A70	181P736070	C-ELEC - 35V 330M-M	
C9A71	181P736070	C-ELEC - 35V 330M-M	
C9A72	181P736070	C-ELEC - 35V 330M-M	
C9A73	181P736070	C-ELEC - 35V 330M-M	
C9A74	142P010090	C-CER - B500V 470P-K	
C9A81	172P181030	C-PLA-PP - 200V 0.01M-J	
C9A82	142P024060	C-CER - BF50V 0.1M-Z	
C9A83	181P355050	C-ELEC - 50V 10M-M	
C9B01	**142P023080**	**C-CER - BF50V 0.01M-Z**	
C9B02	**142P023080**	**C-CER - BF50V 0.01M-Z**	
C9B03	181P736070	C-ELEC - 35V 330M-M	
C9B04	142P020090	C-CER - B50V 1000P-K	
C9B05	181P735020	C-ELEC - 25V 1000M-M 105C	
C9B06	181P746060	C-ELEC - 35V 330M-M	
C9B07	142P020090	C-CER - B50V 1000P-K	
C9B08	181P735020	C-ELEC - 25V 1000M-M 105C	
C9B10	181P352080	C-ELEC - 16V 1000M-M	
C9B11	181P352080	C-ELEC - 16V 1000M-M	
C9C01	181P352030	C-ELEC - 16V 47M-M	
C9C05	181P352030	C-ELEC - 16V 47M-M	
C9C11	181P352030	C-ELEC - 16V 47M-M	
C9C15	181P352030	C-ELEC - 16V 47M-M	
C9C21	181P352030	C-ELEC - 16V 47M-M	
C9C22	181P352030	C-ELEC - 16V 47M-M	
C9C30	181P351080	C-ELEC - 10V 1000M-M	

[#] Model Legend: (1) WT-42313, (2) WT-42413

Ref #	Part #	Part Name & Description	[#]
C9C31	181P351080	C-ELEC - 10V 1000M-M	
C9C32	181P352030	C-ELEC - 16V 47M-M	
C9C35	181P212060	C-ELEC - 16V 47M-M	
C9C41	181P352030	C-ELEC - 16V 47M-M	
C9C42	181P210040	C-ELEC - 6.3V 100M-M	
C9C51	181P350080	C-ELEC - 6.3V 3300M-M	
C9D00	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
C9D01	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
CF2L00	299P128010	CERAMIC-OSC - CSB500F2	
CF2LA0	299P128010	CERAMIC-OSC - CSB500F2	
CF2V01	299P259010	OSC-CERAMIC - CSALA2M69G4ZF01-B0 2.69MHZ	
CF7A01	299P261010	OSC-CERAMIC - CSTLS27M0X51-A0	

SWITCHES

S7L21	432P109010	SW-KEY BOARD - KSHS611BT	
S7L22	432P109010	SW-KEY BOARD - KSHS611BT	
S7L23	432P109010	SW-KEY BOARD - KSHS611BT	
S7L24	432P109010	SW-KEY BOARD - KSHS611BT	
S7L25	432P109010	SW-KEY BOARD - KSHS611BT	
S7L26	432P109010	SW-KEY BOARD - KSHS611BT	
S7L27	432P109010	SW-KEY BOARD - KSHS611BT	
S7L28	432P109010	SW-KEY BOARD - KSHS611BT	
S7L29	432P109010	SW-KEY BOARD - KSHS611BT	

MISCELLANEOUS

	LENS-TAPE	DF TAPE - ADHESIVE	
	246C351050	CORD-AC - POWER	
	292C955010	CLIP-RADIATOR	
	305P702030	2RF-SW	
	330P288010	**YOKE-DEFL - VK20 R/G/B**	
	411D044020	CORE-FERRITE - R19.5 L32	
	411D062010	CORE-FERRITE - R15 L18	
	411D063020	CORE-FERRITE - CAT3035	
	449C141030	**SOCKET-CRT**	
	453B036040	**CAP-ANODE - 14.5"**	
	453B036050	**CAP-ANODE - 22"**	
	453B036060	**CAP-ANODE - 12"**	
	480P053010	SPEAKER - 5"	
	490P220030	LENS-BARREL - ALL COLORS	
	494D006010	MIRROR - 42"	
AG6B01	224D019090	AIR GAP - 1.5+-0.5KV	
AG6G01	224D019090	AIR GAP - 1.5+-0.5KV	
AG6R01	224D019090	AIR GAP - 1.5+-0.5KV	
F5A00	**283P043060**	**FUSE - LF251 3A**	
F9A02	**283P044020**	**FUSE - LF251 10A**	
F9A03	**283P043090**	**FUSE - LF251 5A**	
F9A04	**283P044020**	**FUSE - LF251 10A**	
F9A05	**283P043090**	**FUSE - LF251 5A**	
F9B01	283P043060	FUSE - LF251 3A	
F9D00	**283D131040**	**FUSE - S10A 125A**	
J2C01	452C383010	CONNECTOR-DSUB	
J2D01	452C385010	CONNECTOR-DVI	
K9A50	**287P100010**	**RELAY-PWR - DG9D1-0(M)-II-0.25W**	
PC9A21	**268P058020**	**PHOTO-COUPLER - ON3131-R/ON3161-R**	
PC9A50	**268P106010**	**PHOTO-COUPLER - CNZ313**3	
PJ2J00	440C407010	PIN-JACK-BOARD-6P	
PJ2J01	440C410020	PIN-JACK-BOARD-5P	
PJ2J02	440C410010	PIN-JACK-BOARD-5P	
PJ2J03	440C410010	PIN-JACK-BOARD-5P	

Ref #	Part #	Part Name & Description	[#]
PJ2J05	440C408010	PIN-JACK-BOARD-3P	
PJ2J11	440C412010	PIN-JACK-BOARD-3P	
TU1A01	**295P516010**	**TUNER-TV - 115-V-F045AP**	
TU1B01	**295P516020**	**TUNER-TV - 115-V-F025AP**	
X2L00	285P426010	QTZ-CRYST - 3.579545MHZ	
X2LA0	285P426010	QTZ-CRYST - 3.579545MHZ	
X2M30	285P426040	QTZ-CRYST - 20.000MHZ	
X2N00	285P426020	QTZ-CRYST - 4.000000MHZ	
X2S00	285P426020	QTZ-CRYST - 4.000000MHZ	
X3A01	285P413010	QTZ-CRYST - 18.432MHZ	
X7A13	285P426030	QTZ-CRYST - 10.000MHZ	
X7H00	285P335050	QTZ-CRYST - 80.000MHZ	
Z7K01	939P617010	UNIT-PREAMP - GP1U283Q	

PRINTED CIRCUIT BOARDS

	930B909001	ASSY-PWB-MAIN	
	930B910001	ASSY-PWB-POWER	
	930B911001	ASSY-PWB-SIGNAL	b
	930B911002	ASSY-PWB-SIGNAL	a
	930B912001	ASSY-PWB-TERMINAL	
	934C005003	ASSY-PWB-CRT	
	934C006003	ASSY-PWB-SVM	
	935C996001	ASSY-PWB-DOUBLER	
	935D660003	ASSY-PWB-PREAMP	
	935D661001	ASSY-PWB-UNI	
	935D662003	ASSY-PWB-CONTROL	
	935D663003	ASSY-PWB-DBF	

COSMETIC PARTS

	705C011010	DOOR - CONTROL	
	750A433010	COVER-BACK	
	750A435020	GRILLE-SPEAKER	a
	750A436010	PANEL - TERMINAL-BOARD	
	750A482010	COVER-BACK - TERMINAL	
	760B271010	INLAY-TERMINAL	
	761A208010	GRILLE-SPEAKER	b

ACCESSORIES

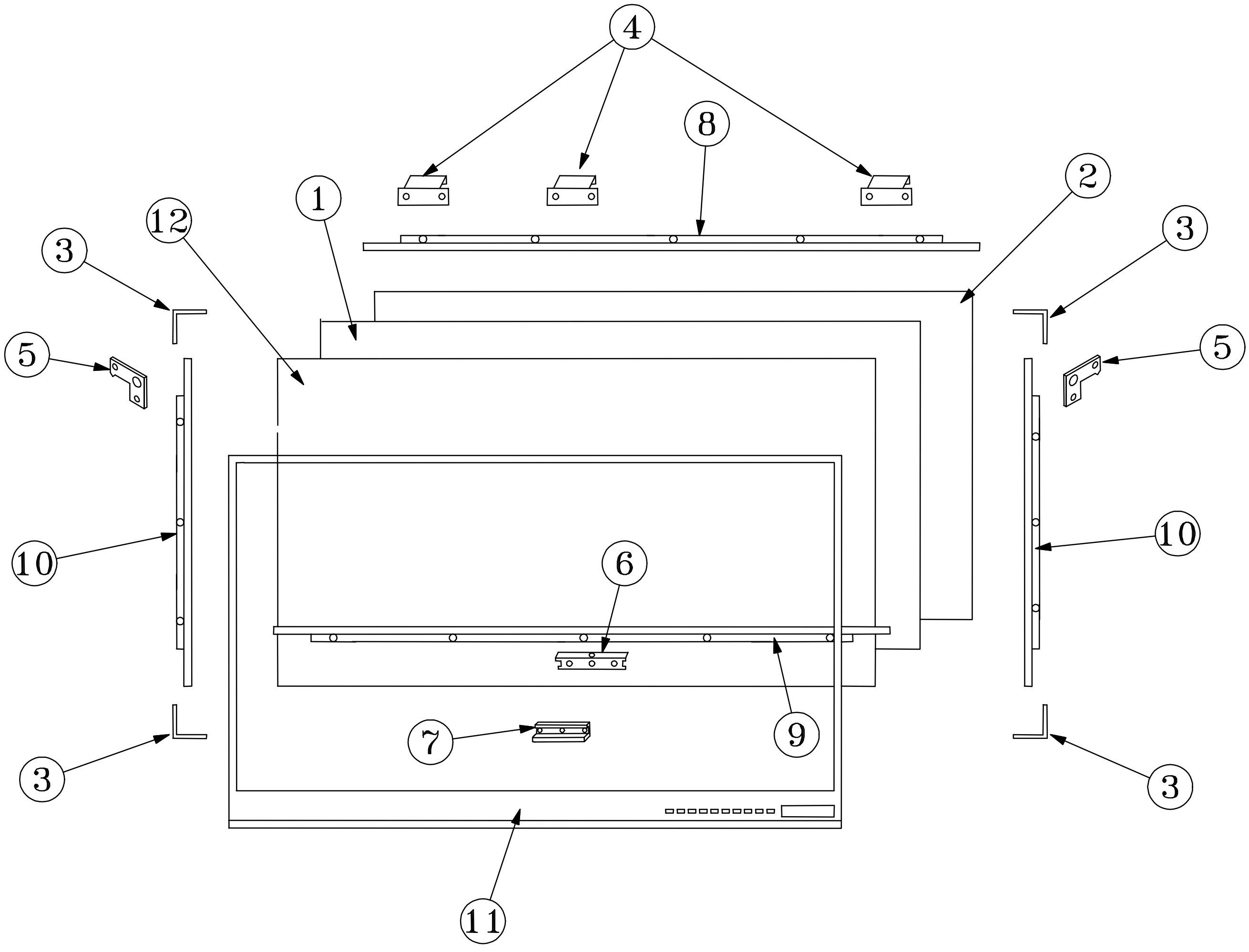
	290P116010	REMOTE CONTROL - V22	a
	290P117010	REMOTE CONTROL - V22+/V23	b
	I/QR WT42313	GUIDE-QR	a
	I/QR WT42413	GUIDE-QR	b
	853B399010	CARD-REGISTRATION	
	I/B WT42313	GUIDE - OWNERS	a
	I/B WT42413	GUIDE - OWNERS	b

MODELS: WS-42311 / WT-42413

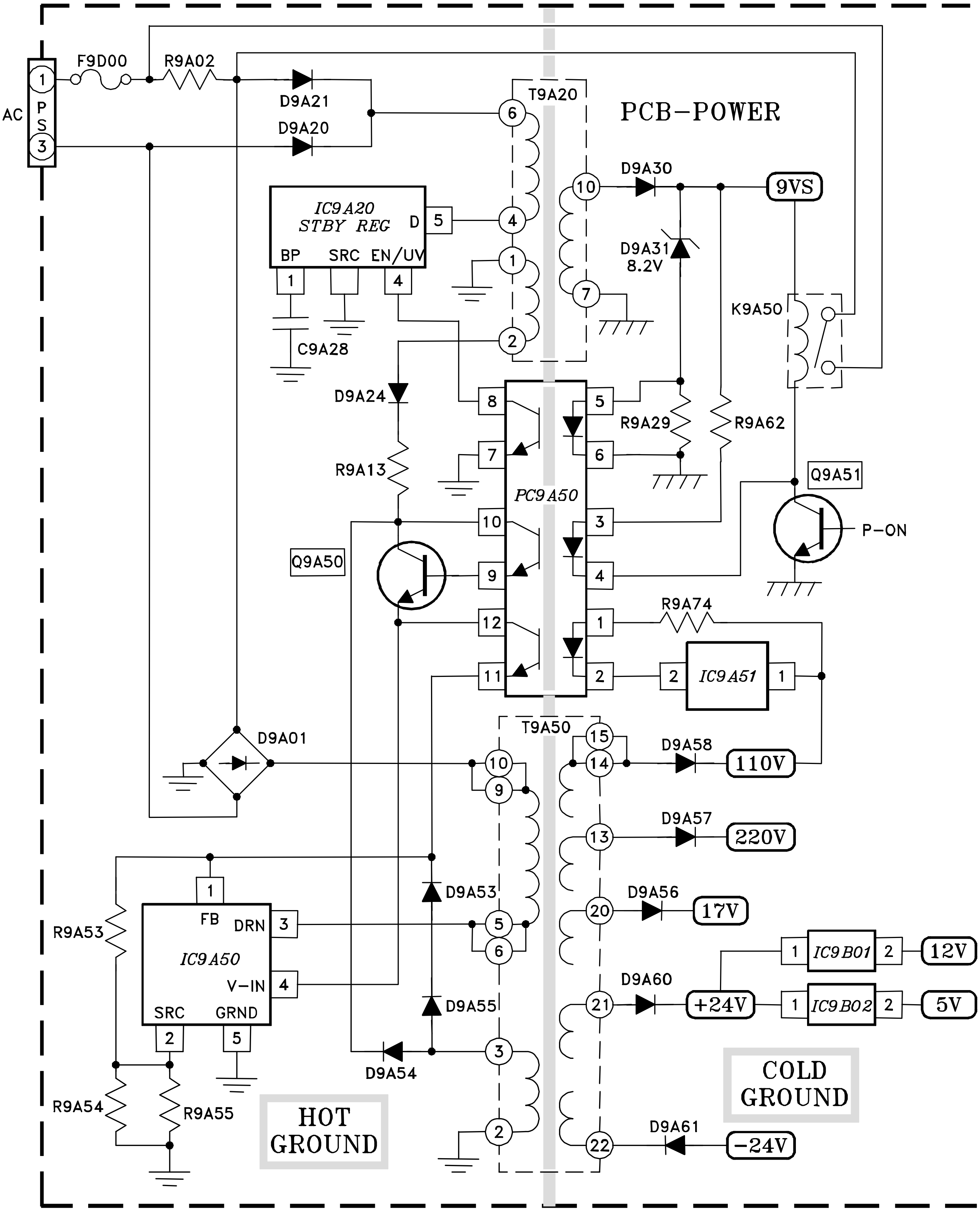
[[#] Model Legend: (a) WT-42313, (b) WT-42413

Ref #	Part #	Part Name & Description	[#]
SCREEN ASSEMBLY PARTS			
(1)	491P136020	SCREEN-LENTICULAR	
(2)	491P137020	LENS-FRESNEL	
(3)	596C569010	SCREEN - BRACKET-CORNER	
(4)	598D298010	SCREEN - BRACKET-MASK	
(5)	598D300010	SCREEN - BRACKET-SIDE	
(6)	598D548010	SCREEN - BRACKET-BTM	
(7)	598D549010	BRACKET-SHIELD	
(8)	641B942010	SCREEN - HOLDER-TOP	
(9)	641B942020	SCREEN - HOLDER-T	
(10)	641B943010	SCREEN - HOLDER-SIDES	
(11)	750A434020	FRAME-FRONT - WT-42413	b
(11)	750A434030	FRAME-FRONT - WT-42313	a
(12)	760D628070	DIAMOND SHIELD	

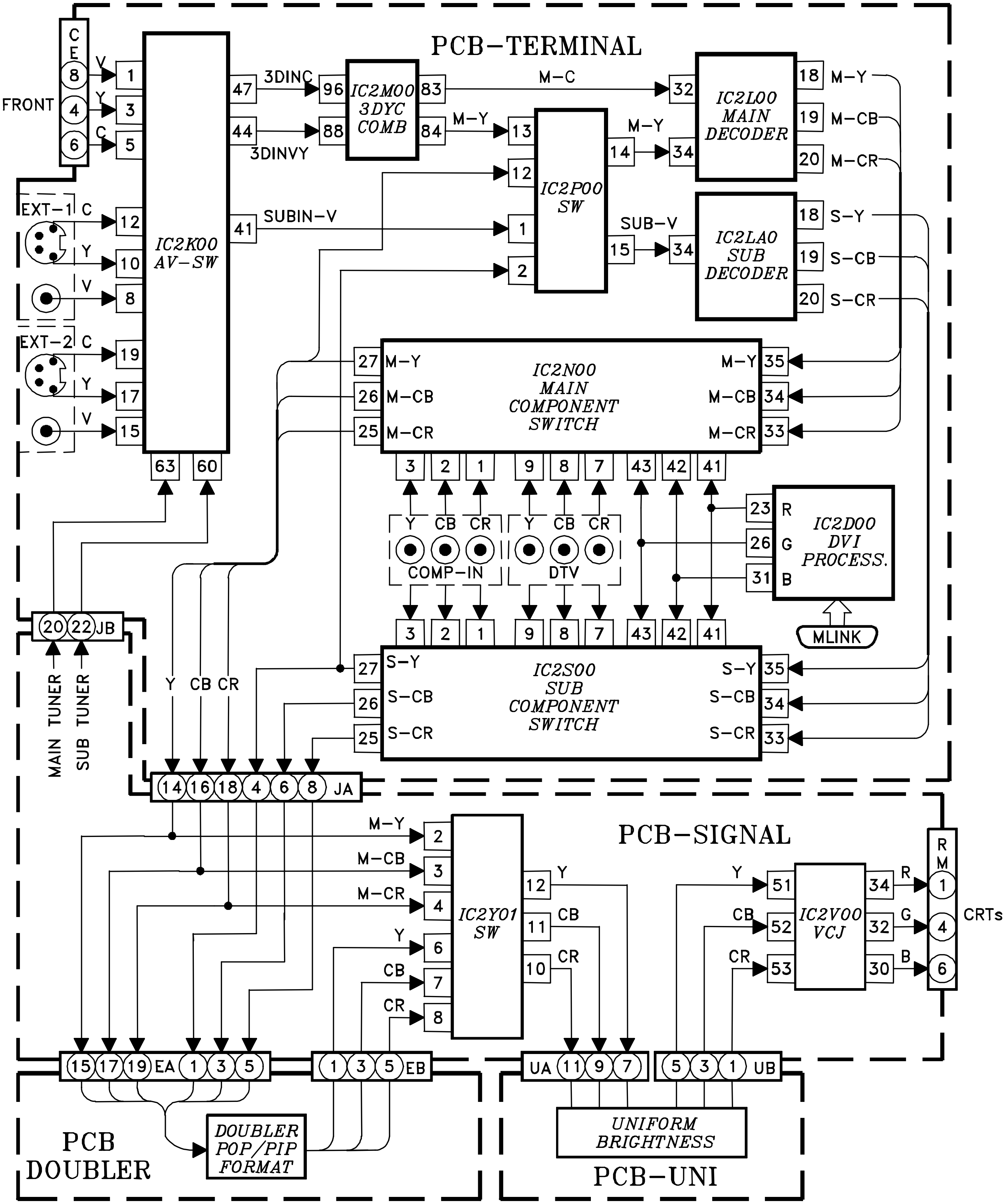
Ref #	Part #	Part Name & Description	[#]



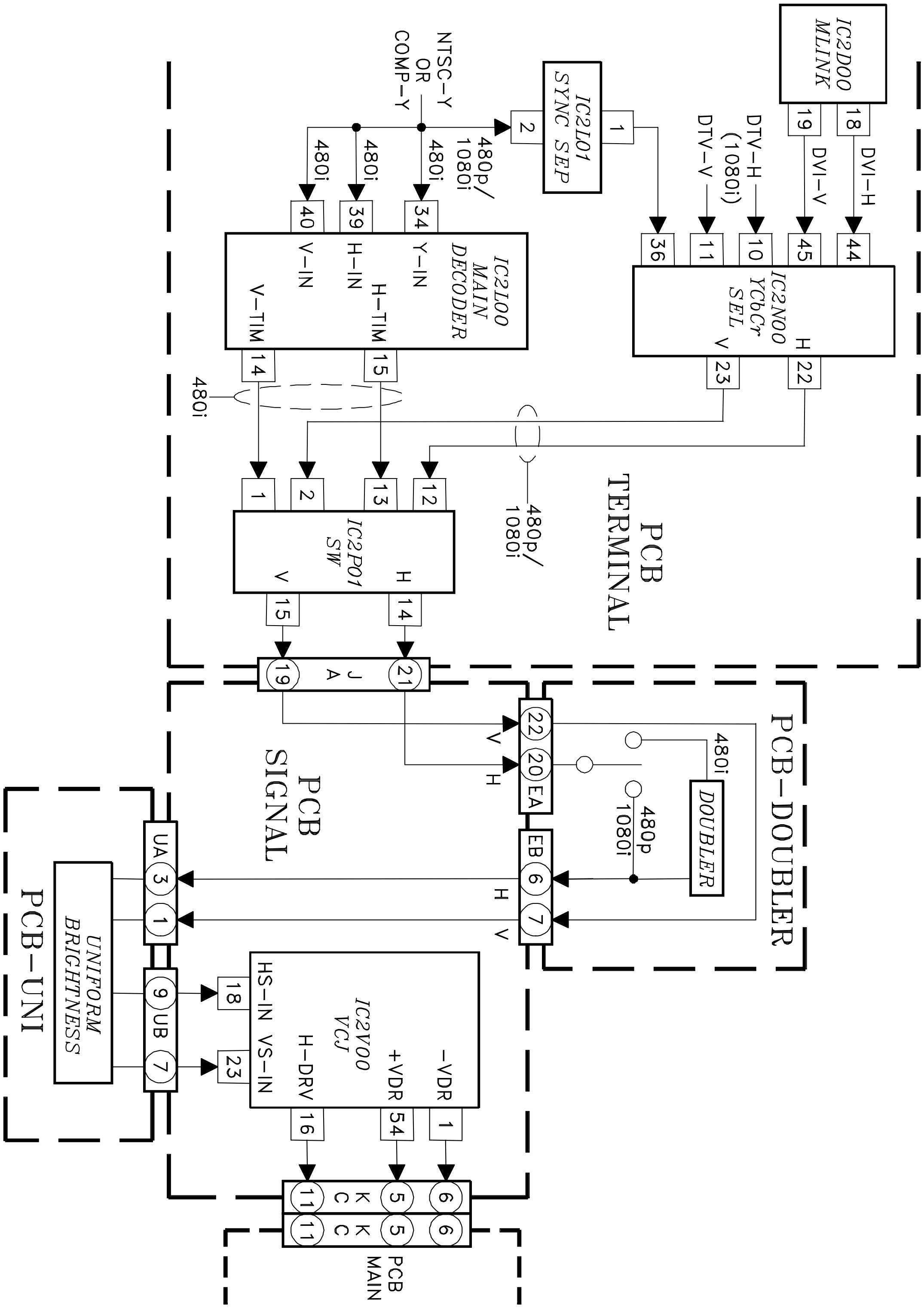
POWER SUPPLY


AC
PS
1
3
F9D00
R9A02
D9A21
D9A20
T9A20
PCB−POWER
IC9A20
STBY REG
D
5
BP
SRC
EN/UV
1
4
C9A28
6
4
1
2
10
7
D9A30
9VS
D9A31
8.2V
K9A50
D9A24
R9A13
PC9A50
8
7
10
9
12
11
5
6
3
4
1
2
R9A29
R9A62
Q9A51
P−ON
Q9A50
R9A74
IC9A51
2
1
T9A50
D9A01
10
9
15
14
D9A58
110V
13
D9A57
220V
20
D9A56
17V
IC9B01
1
2
12V
21
D9A60
+24V
IC9B02
1
2
5V
22
D9A61
−24V
IC9A50
1
FB
DRN
3
V−IN
4
SRC
GRND
2
5
R9A53
R9A54
R9A55
D9A53
D9A55
D9A54
5
6
3
2
HOT GROUND
COLD GROUND

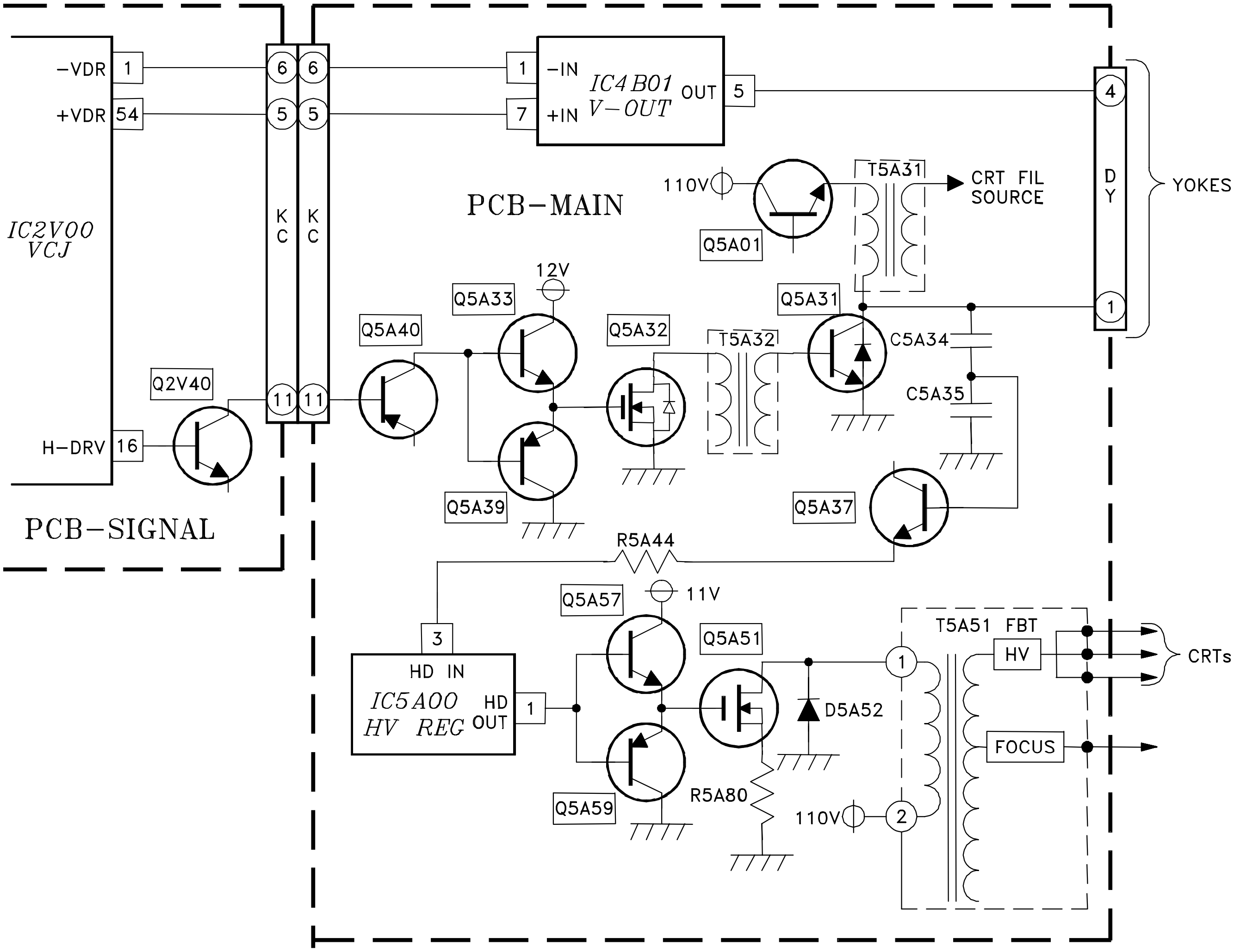
VIDEO / COLOR


PCB-TERMINAL
FRONT
CE
IC2K00 AV-SW
IC2M00 3DYC COMB
3DINC
3DINVY
M-C
M-Y
IC2P00 SW
IC2L00 MAIN DECODER
IC2LA0 SUB DECODER
SUBIN-V
SUB-V
M-Y
M-CB
M-CR
S-Y
S-CB
S-CR
EXT-1
EXT-2
IC2N00 MAIN COMPONENT SWITCH
IC2S00 SUB COMPONENT SWITCH
COMP-IN
DTV
Y CB CR
IC2D00 DVI PROCESS.
R G B
MLINK
JB
MAIN TUNER
SUB TUNER
JA
PCB-SIGNAL
IC2Y01 SW
IC2V00 VCJ
RM
CRTs
EA
EB
UA
UB
PCB DOUBLER
DOUBLER POP/PIP FORMAT
UNIFORM BRIGHTNESS
PCB-UNI

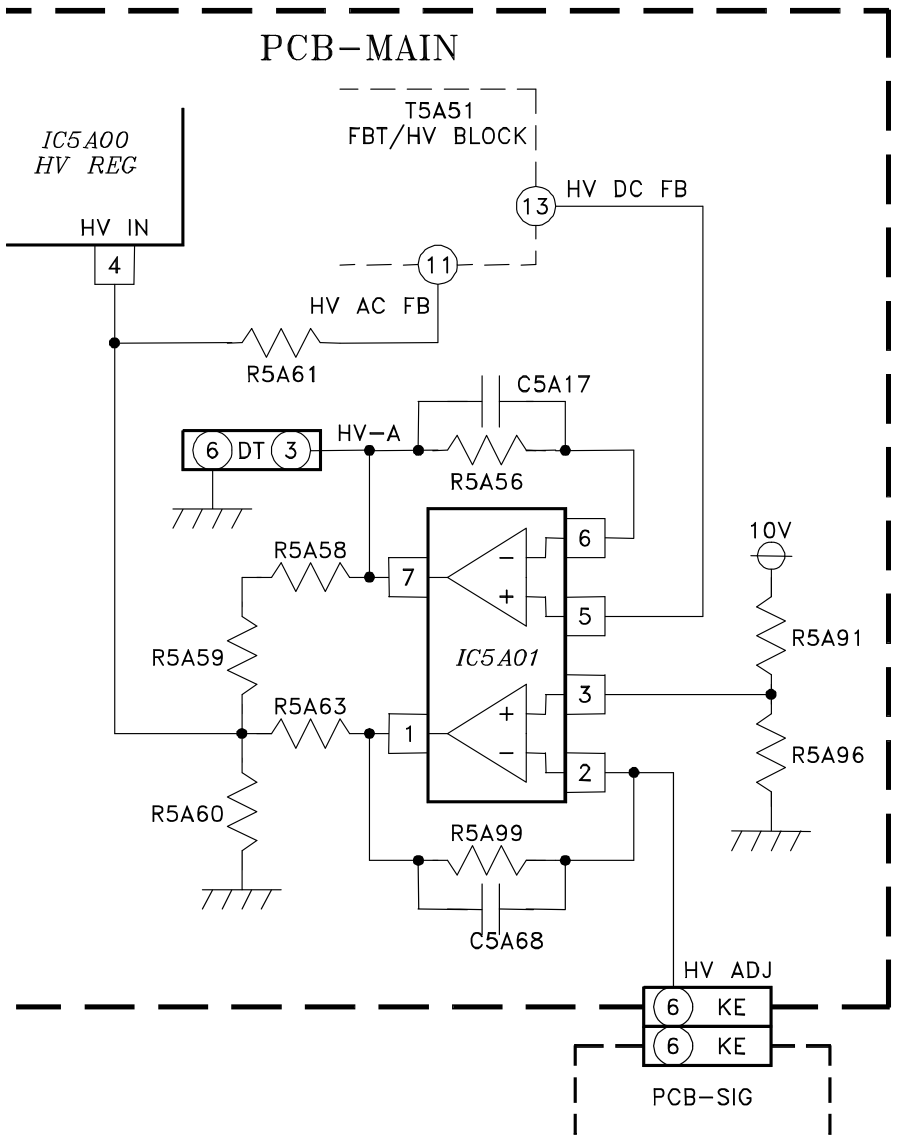
SYNC SIGNAL PATH


IC2D00
MLINK
18
19
DVI-H
DVI-V
DTV-H
(1080i)
DTV-V
IC2L01
SYNC SEP
1
2
NTSC-Y
OR
COMP-Y
480p/
1080i
480i
480i
480i
44
45
10
11
36
IC2N00
YCbCr
SEL
H
V
22
23
34
39
40
IC2L00
MAIN
DECODER
Y-IN
H-IN
V-IN
H-TIM
V-TIM
15
14
480i
480p/
1080i
12
13
2
1
IC2P01
SW
H
V
14
15
PCB
TERMINAL
J
A
21
19
PCB-DOUBLER
22
20
EA
V
H
480i
DOUBLER
480p
1080i
EB
6
7
H
V
PCB
SIGNAL
UA
3
1
UB
9
7
PCB-UNI
UNIFORM
BRIGHTNESS
IC2V00
VCJ
18
23
HS-IN
VS-IN
H-DRV
+VDR
-VDR
16
54
1
K
C
11
5
6
PCB
MAIN

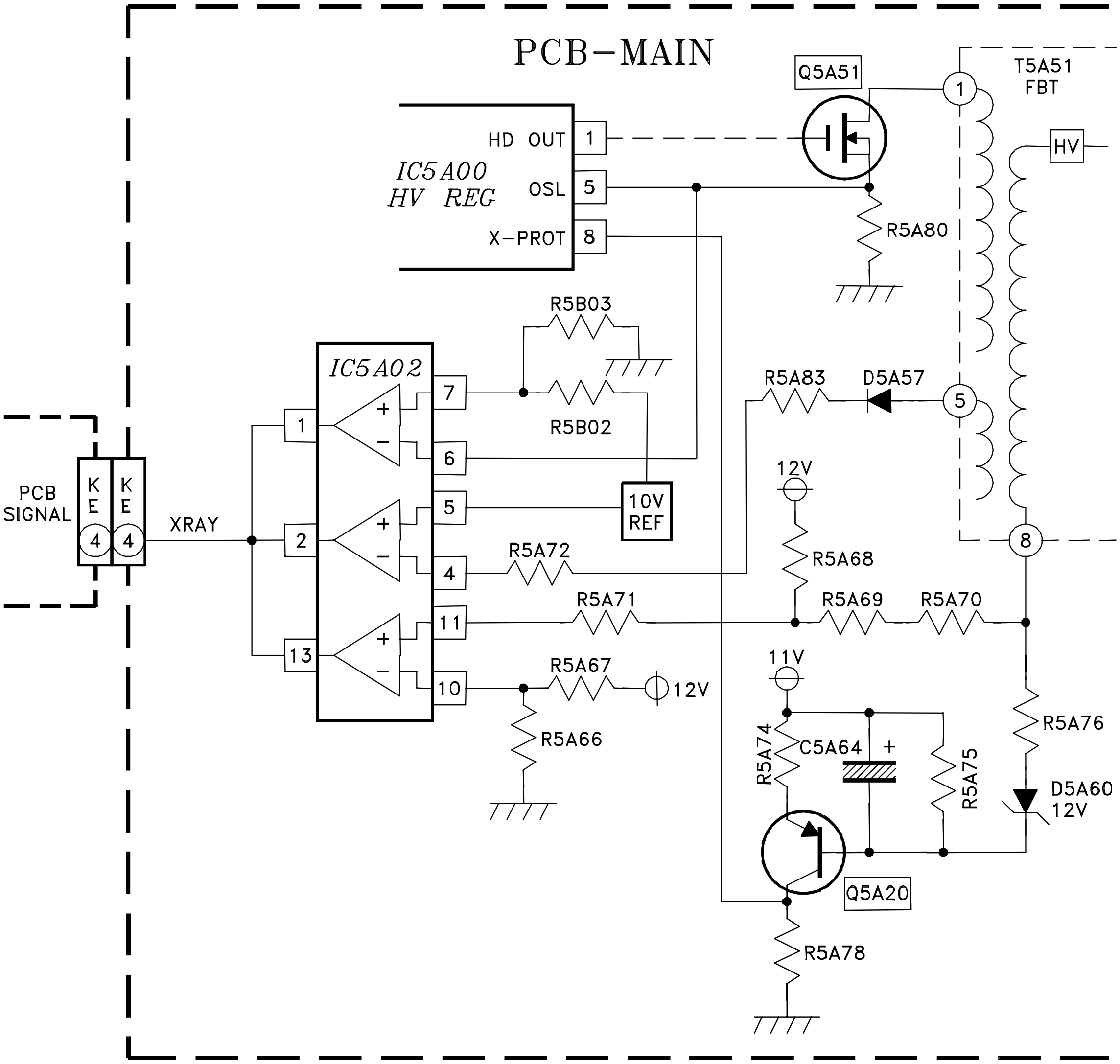
DEFLECTION / HV


-VDR 1
+VDR 54
IC2V00 VCJ
Q2V40
H-DRV 16
PCB-SIGNAL
6 6
5 5
KC KC
11 11
1 -IN
7 +IN
IC4B01 V-OUT
OUT 5
PCB-MAIN
110V
Q5A01
T5A31
CRT FIL SOURCE
DY
4
1
YOKES
12V
Q5A33
Q5A40
Q5A32
Q5A39
T5A32
Q5A31
C5A34
C5A35
Q5A37
R5A44
3
HD IN
IC5A00 HV REG
HD OUT 1
Q5A57
11V
Q5A51
Q5A59
D5A52
R5A80
110V
T5A51 FBT
HV
FOCUS
CRTs
1
2

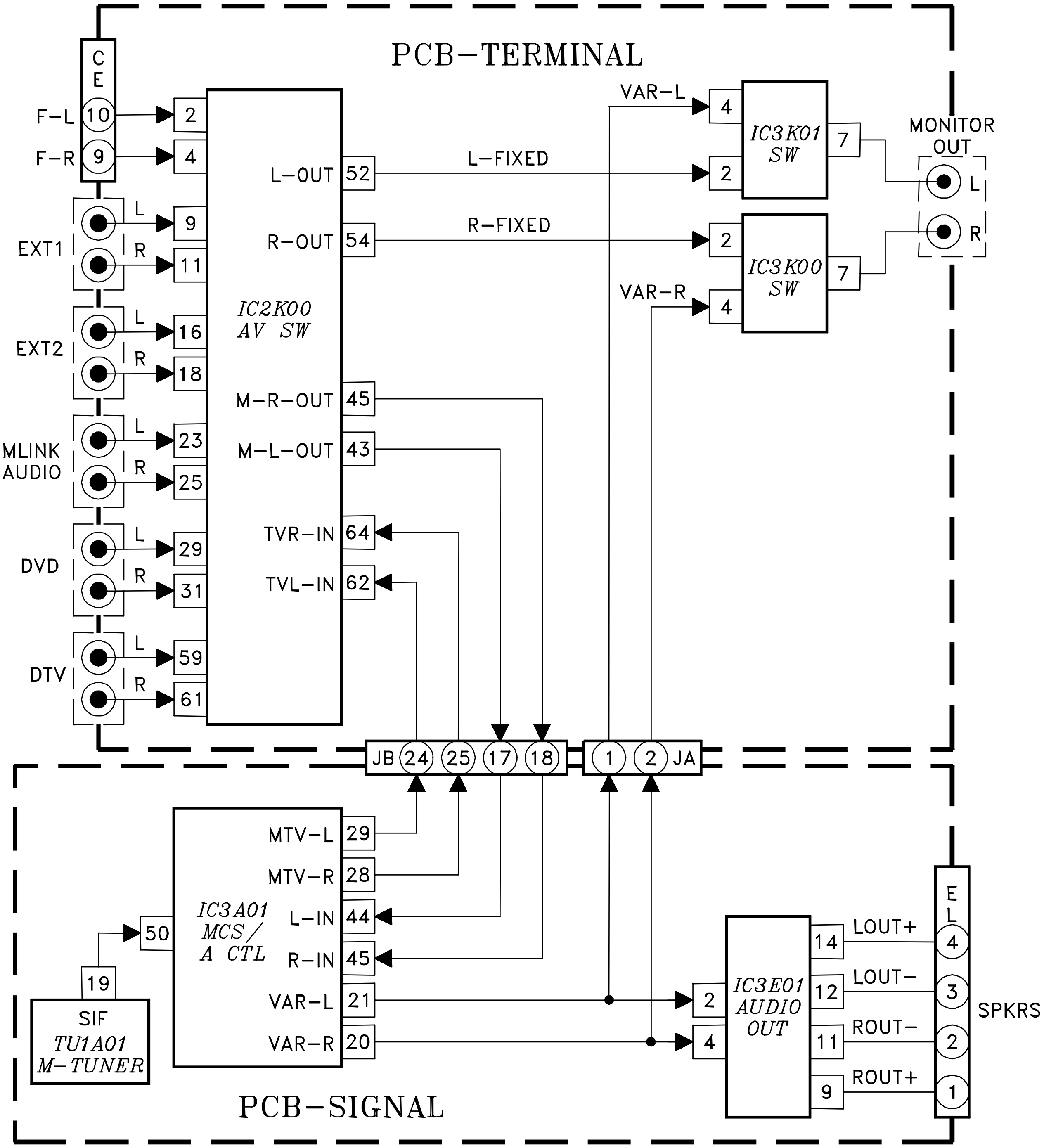
HV REGULATION


PCB−MAIN
T5A51
FBT/HV BLOCK
IC5A00
HV REG
HV IN
4
13
HV DC FB
11
HV AC FB
R5A61
C5A17
6 DT 3
HV−A
R5A56
R5A58
7
6
5
R5A59
IC5A01
10V
R5A91
3
R5A63
1
2
R5A96
R5A60
R5A99
C5A68
HV ADJ
6 KE
6 KE
PCB−SIG

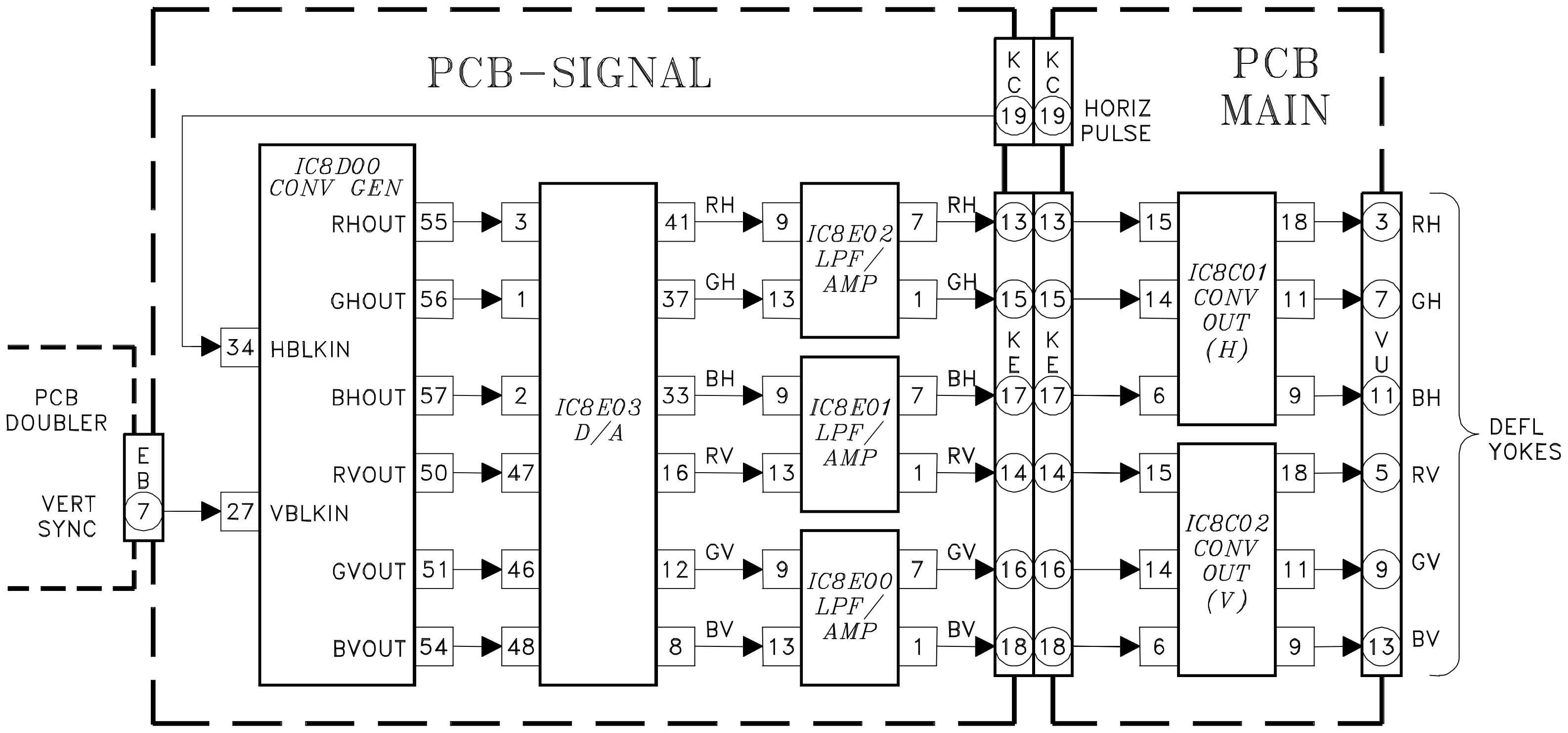
X-RAY PROTECT


PCB−MAIN
IC5A00
HV REG
HD OUT 1
OSL 5
X−PROT 8
Q5A51
T5A51
FBT
HV
1
5
8
R5A80
R5B03
R5B02
IC5A02
1
2
13
7
6
5
4
11
10
10V
REF
PCB
SIGNAL
KE
4
XRAY
R5A83
D5A57
12V
R5A68
R5A72
R5A71
R5A69
R5A70
R5A67
12V
R5A66
11V
R5A74
C5A64
R5A75
R5A76
D5A60
12V
Q5A20
R5A78

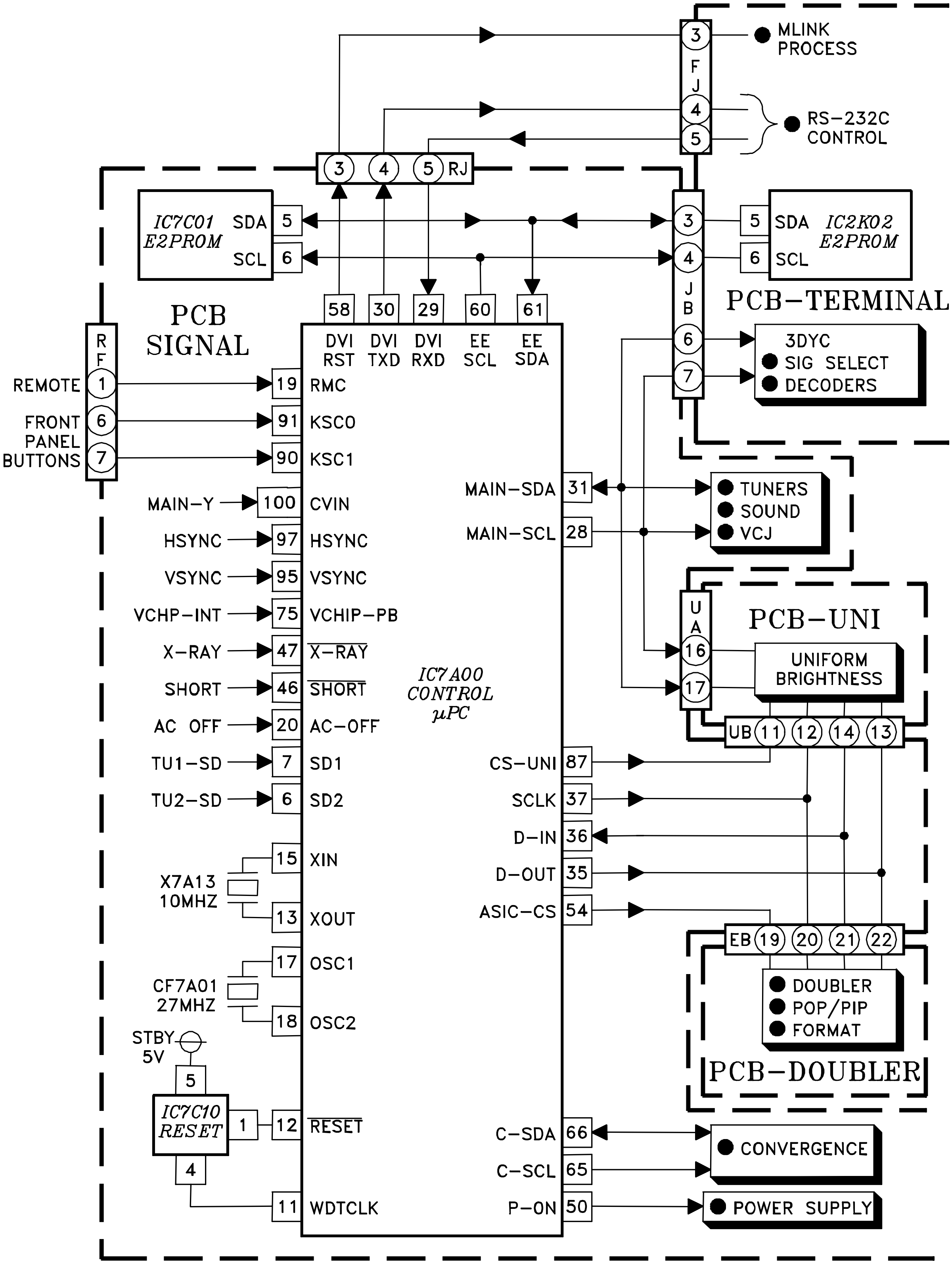
SOUND SIGNAL PATH


PCB−TERMINAL
CE
F−L 10 → 2
F−R 9 → 4
EXT1 L → 9, R → 11
EXT2 L → 16, R → 18
MLINK AUDIO L → 23, R → 25
DVD L → 29, R → 31
DTV L → 59, R → 61
IC2K00 AV SW
L−OUT 52
R−OUT 54
M−R−OUT 45
M−L−OUT 43
TVR−IN 64
TVL−IN 62
L−FIXED
R−FIXED
VAR−L
VAR−R
IC3K01 SW 4 2 7
IC3K00 SW 2 4 7
MONITOR OUT L R
JB 24 25 17 18
1 2 JA
PCB−SIGNAL
SIF TU1A01 M−TUNER 19
IC3A01 MCS/ A CTL 50
MTV−L 29
MTV−R 28
L−IN 44
R−IN 45
VAR−L 21
VAR−R 20
IC3E01 AUDIO OUT 2 4
14 LOUT+
12 LOUT−
11 ROUT−
9 ROUT+
EL 4 3 2 1
SPKRS

CONVERGENCE


PCB−SIGNAL
PCB MAIN
IC8D00 CONV GEN
RHOUT 55
GHOUT 56
HBLKIN 34
BHOUT 57
RVOUT 50
VBLKIN 27
GVOUT 51
BVOUT 54
IC8E03 D/A
3
1
2
47
46
48
41
37
33
16
12
8
RH
GH
BH
RV
GV
BV
IC8E02 LPF/ AMP
IC8E01 LPF/ AMP
IC8E00 LPF/ AMP
9
13
7
1
KC 19
KC 19
HORIZ PULSE
KE 13 15 17 14 16 18
KE 13 15 17 14 16 18
IC8C01 CONV OUT (H)
IC8C02 CONV OUT (V)
15
14
6
18
11
9
VU 3 7 11 5 9 13
RH
GH
BH
RV
GV
BV
DEFL YOKES
PCB DOUBLER
EB 7
VERT SYNC

CONTROL CIRCUITRY

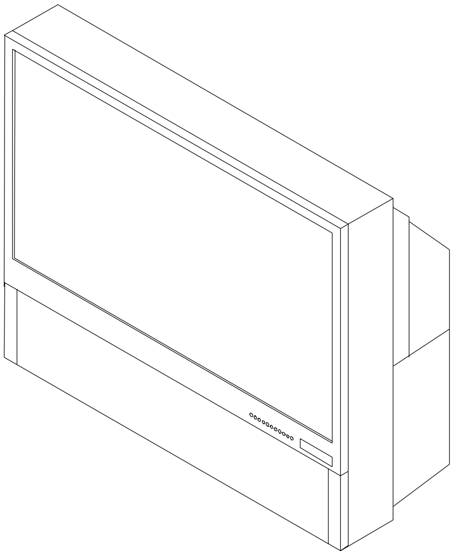

MLINK PROCESS
FJ 3 4 5
RS-232C CONTROL
RJ 3 4 5
IC7C01 E2PROM
SDA 5
SCL 6
JB 3 4 6 7
5 SDA IC2K02 E2PROM
6 SCL
PCB-TERMINAL
3DYC
SIG SELECT
DECODERS
PCB SIGNAL
RF 1 6 7
REMOTE
FRONT PANEL BUTTONS
58 DVI RST
30 DVI TXD
29 DVI RXD
60 EE SCL
61 EE SDA
19 RMC
91 KSC0
90 KSC1
MAIN-Y 100 CVIN
HSYNC 97 HSYNC
VSYNC 95 VSYNC
VCHP-INT 75 VCHIP-PB
X-RAY 47 X-RAY
SHORT 46 SHORT
AC OFF 20 AC-OFF
TU1-SD 7 SD1
TU2-SD 6 SD2
X7A13 10MHZ
15 XIN
13 XOUT
CF7A01 27MHZ
17 OSC1
18 OSC2
STBY 5V
5
IC7C10 RESET
1
4
12 RESET
11 WDTCLK
IC7A00 CONTROL µPC
MAIN-SDA 31
MAIN-SCL 28
TUNERS
SOUND
VCJ
UA 16 17
PCB-UNI
UNIFORM BRIGHTNESS
UB 11 12 14 13
CS-UNI 87
SCLK 37
D-IN 36
D-OUT 35
ASIC-CS 54
EB 19 20 21 22
DOUBLER
POP/PIP
FORMAT
PCB-DOUBLER
C-SDA 66
C-SCL 65
P-ON 50
CONVERGENCE
POWER SUPPLY

2003-2004

MITSUBISHI ELECTRIC

Service Manual

PROJECTION TELEVISION
K20 CHASSIS - ADDENDUM



WT-42313
WT-42315 See Note
WT-42413

Note: For parts specific to the WT-42315, refer to the attached addendum. For all other service and parts information, refer to the WT-42313 / WT-42413 Service Manual.

CAUTION:
Before servicing this chassis, it is important that the service person read the "SAFETY PRECAUTIONS" and "PRODUCT SAFETY NOTICE" contained in this manual.

SPECIFICATIONS

- **Power** : AC 120V, 60Hz
  240W
- **Frequency Range** : VHF 54 ~ 470MHz
  UHF 470 ~ 806MHz
- **Antenna Input** : VHF/UHF 75Ω unbalanced
- **CRT Size** : [7 inches]
- **High Voltage** : 32.0kV (at 0A)
- **Cabinet Demensions** : 39"(W)x34"(H)x25"(D)
- **Weight** : 105 lbs

- **Speaker** : Two 5" round, full range (8Ω 5W)
- **Input Level** : VIDEO IN JACK (RCA Type)
  1.0Vp-p 75Ω unbalanced
  : AUDIO IN JACK (RCA Type)
  -4.7dBm 43kΩ unbalanced
  : S-VIDEO IN JACK (Y/C separate)
  Y=1.0 Vp-p C=0.286Vp-p(BURST)
  75Ω unbalanced
  : COMP / Y, Cr, Cb (RCA Type)
  Y=1.0 Vp-p. Cr, Cb=700mVp-p
  : ATV / Y(G), Pr(R), Pb(B), H, V
  Y 1.0Vp-p with sync 75Ω (RCA Type)
  Pr, Pb: 700mV 75Ω
  H, V: 3.0Vp-p 75Ω
- **Digital Inputs** MonitorLink™/DVI
- **Output Level** : VIDEO OUT JACK (RCA Type)
  1.0Vp-p 75Ω unbalanced
  : AUDIO OUT JACK (RCA Type)
  -4.7dBm 4.7kΩ unbalanced

- Weight and dimensions shown are approximate.
- Design specifications are subject to change without notice.

MITSUBISHI DIGITAL ELECTRONICS AMERICA, INC.
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[#] Model Legend: (a) WT-42313, (b) WT-42315, (c) WT-42413

Ref #	Part #	Part Name & Description	[#]
C9C31	181P351080	C-ELEC - 10V 1000M-M	
C9C32	181P352030	C-ELEC - 16V 47M-M	
C9C35	181P212060	C-ELEC - 16V 47M-M	
C9C41	181P352030	C-ELEC - 16V 47M-M	
C9C42	181P210040	C-ELEC - 6.3V 100M-M	
C9C51	181P350080	C-ELEC - 6.3V 3300M-M	
C9D00	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
C9D01	**189P153040**	**C-M-POLY - 250VAC 0.1M-M**	
CF2L00	299P128010	CERAMIC-OSC - CSB500F2	
CF2LA0	299P128010	CERAMIC-OSC - CSB500F2	
CF2V01	299P259010	OSC-CERAMIC - CSALA2M69G4ZF01-B0 2.69MHZ	
CF7A01	299P261010	OSC-CERAMIC - CSTLS27M0X51-A0	

SWITCHES

Ref #	Part #	Part Name & Description	[#]
S7L21	432P109010	SW-KEY BOARD - KSHS611BT	
S7L22	432P109010	SW-KEY BOARD - KSHS611BT	
S7L23	432P109010	SW-KEY BOARD - KSHS611BT	
S7L24	432P109010	SW-KEY BOARD - KSHS611BT	
S7L25	432P109010	SW-KEY BOARD - KSHS611BT	
S7L26	432P109010	SW-KEY BOARD - KSHS611BT	
S7L27	432P109010	SW-KEY BOARD - KSHS611BT	
S7L28	432P109010	SW-KEY BOARD - KSHS611BT	
S7L29	432P109010	SW-KEY BOARD - KSHS611BT	

MISCELLANEOUS

Ref #	Part #	Part Name & Description	[#]
	LENS-TAPE	DF TAPE - ADHESIVE	
	246C351050	CORD-AC - POWER	
	292C955010	CLIP-RADIATOR	
	305P702030	2RF-SW	
	330P288010	**YOKE-DEFL - VK20 R/G/B**	
	411D044020	CORE-FERRITE - R19.5 L32	
	411D062010	CORE-FERRITE - R15 L18	
	411D063020	CORE-FERRITE - CAT3035	
	449C141030	**SOCKET-CRT**	
	453B036040	**CAP-ANODE - 14.5"**	
	453B036050	**CAP-ANODE - 22"**	
	453B036060	**CAP-ANODE - 12"**	
	480P053010	SPEAKER - 5"	
	490P220030	LENS-BARREL - ALL COLORS	
	494D006010	MIRROR - 42"	
AG6B01	224D019090	AIR GAP - 1.5+-0.5KV	
AG6G01	224D019090	AIR GAP - 1.5+-0.5KV	
AG6R01	224D019090	AIR GAP - 1.5+-0.5KV	
F5A00	**283P043060**	**FUSE - LF251 3A**	
F9A02	**283P044020**	**FUSE - LF251 10A**	
F9A03	**283P043090**	**FUSE - LF251 5A**	
F9A04	**283P044020**	**FUSE - LF251 10A**	
F9A05	**283P043090**	**FUSE - LF251 5A**	
F9B01	283P043060	FUSE - LF251 3A	
F9D00	**283D131040**	**FUSE - S10A 125A**	
J2C01	452C383010	CONNECTOR-DSUB	
J2D01	452C385010	CONNECTOR-DVI	
K9A50	**287P100010**	**RELAY-PWR - DG9D1-0(M)-II-0.25W**	
PC9A21	**268P058020**	**PHOTO-COUPLER - ON3131-R/ON3161-R**	
PC9A50	**268P106010**	**PHOTO-COUPLER - CNZ313**3	
PJ2J00	440C407010	PIN-JACK-BOARD-6P	
PJ2J01	440C410020	PIN-JACK-BOARD-5P	
PJ2J02	440C410010	PIN-JACK-BOARD-5P	
PJ2J03	440C410010	PIN-JACK-BOARD-5P	
PJ2J05	440C408010	PIN-JACK-BOARD-3P	
PJ2J11	440C412010	PIN-JACK-BOARD-3P	
TU1A01	**295P516010**	**TUNER-TV - 115-V-F045AP**	
TU1B01	**295P516020**	**TUNER-TV - 115-V-F025AP**	
X2L00	285P426010	QTZ-CRYST - 3.579545MHZ	
X2LA0	285P426010	QTZ-CRYST - 3.579545MHZ	
X2M30	285P426040	QTZ-CRYST - 20.000MHZ	
X2N00	285P426020	QTZ-CRYST - 4.000000MHZ	
X2S00	285P426020	QTZ-CRYST - 4.000000MHZ	
X3A01	285P413010	QTZ-CRYST - 18.432MHZ	
X7A13	285P426030	QTZ-CRYST - 10.000MHZ	
X7H00	285P335050	QTZ-CRYST - 80.000MHZ	
Z7K01	939P617010	UNIT-PREAMP - GP1U283Q	

PRINTED CIRCUIT BOARDS

Ref #	Part #	Part Name & Description	[#]
	930B909001	ASSY-PWB-MAIN	
	930B910001	ASSY-PWB-POWER	
	930B911001	ASSY-PWB-SIGNAL	c
	930B911002	ASSY-PWB-SIGNAL	ab
	930B912001	ASSY-PWB-TERMINAL	
	934C005003	ASSY-PWB-CRT	
	934C006003	ASSY-PWB-SVM	
	935C996001	ASSY-PWB-DOUBLER	
	935D660003	ASSY-PWB-PREAMP	
	935D661001	ASSY-PWB-UNI	
	935D662003	ASSY-PWB-CONTROL	
	935D663003	ASSY-PWB-DBF	

COSMETIC PARTS

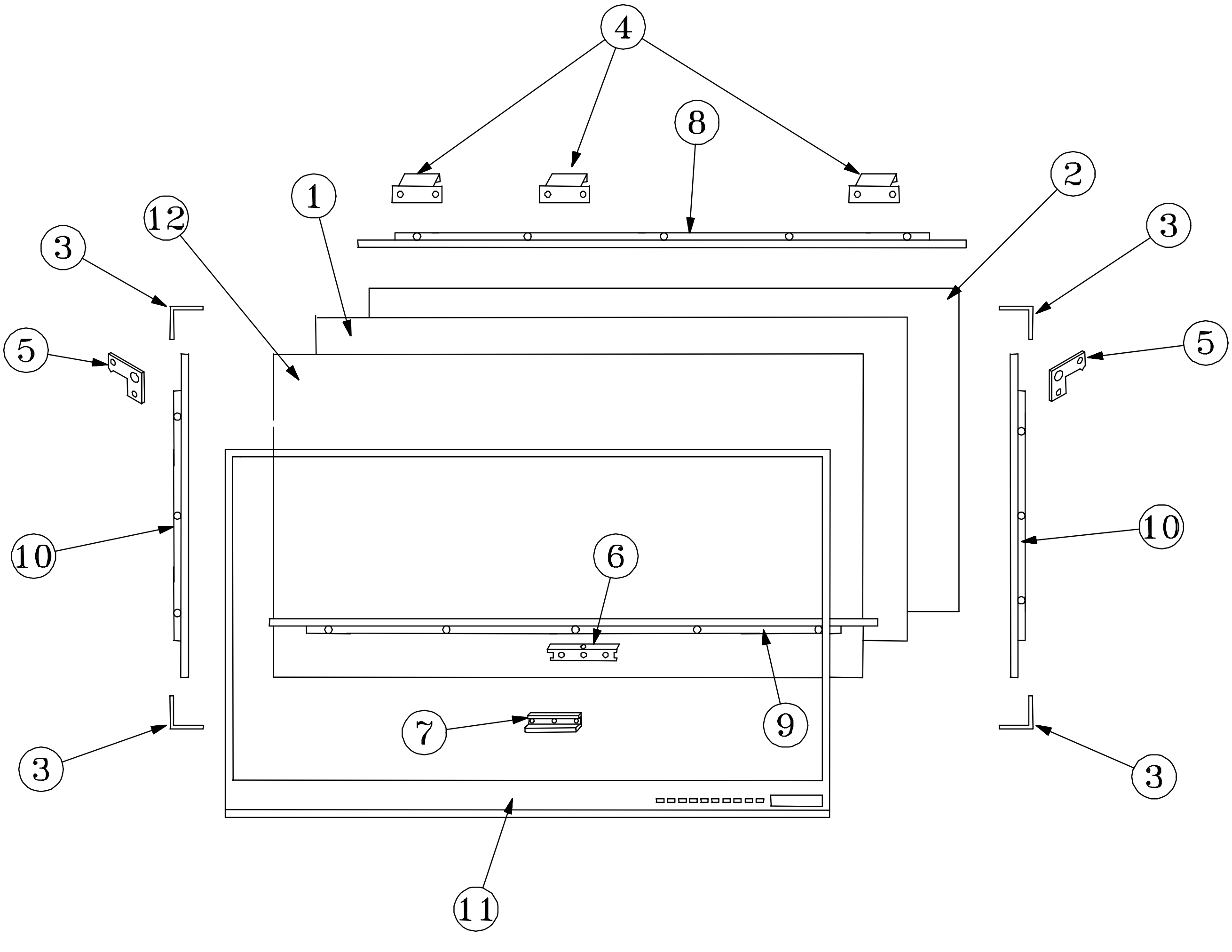
Ref #	Part #	Part Name & Description	[#]
	705C011010	DOOR - CONTROL	
	750A433010	COVER-BACK	
	750A435020	GRILLE-SPEAKER	a
	761A208010	GRILLE-SPEAKER	bc
	750A436010	PANEL - TERMINAL-BOARD	
	750A482010	COVER-BACK - TERMINAL	
	760B271010	INLAY-TERMINAL	

ACCESSORIES

Ref #	Part #	Part Name & Description	[#]
	290P116010	REMOTE CONTROL - V22	a
	290P117010	REMOTE CONTROL - V22+/V23	bc
	I/QR WT42313	GUIDE-QR	a
	I/QR WT42315	GUIDE-QR	b
	I/QR WT42413	GUIDE-QR	c
	853B399010	CARD-REGISTRATION	
	I/B WT42313	GUIDE - OWNERS	a
	I/B WT42315	GUIDE - OWNERS	b
	I/B WT42413	GUIDE - OWNERS	c

[[#] Model Legend: (a) WT-42313, (b) WT-42315, (c) WT-42413

Ref #	Part #	Part Name & Description	[#]
SCREEN ASSEMBLY PARTS			
(1)	491P136020	SCREEN-LENTICULAR	
(2)	491P137020	LENS-FRESNEL	
(3)	596C569010	SCREEN - BRACKET-CORNER	
(4)	598D298010	SCREEN - BRACKET-MASK	
(5)	598D300010	SCREEN - BRACKET-SIDE	
(6)	598D548010	SCREEN - BRACKET-BTM	
(7)	598D549010	BRACKET-SHIELD	
(8)	641B942010	SCREEN - HOLDER-TOP	
(9)	641B942020	SCREEN - HOLDER-T	
(10)	641B943010	SCREEN - HOLDER-SIDES	
(11)	750A434030	FRAME-FRONT - WT-42313	ab
(11)	750A434020	FRAME-FRONT - WT-42413	c
(12)	760D628070	DIAMOND SHIELD	

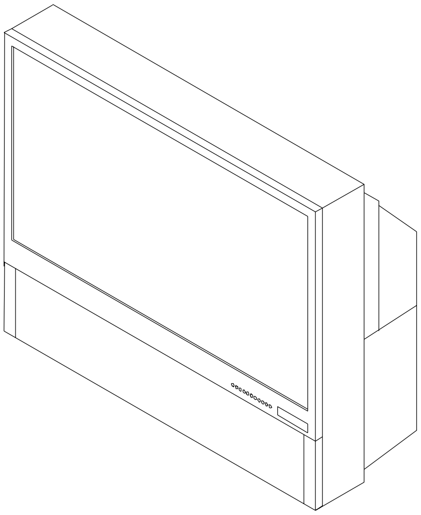


2003

MITSUBISHI ELECTRIC

Service Manual

PROJECTION TELEVISION
K20 CHASSIS



WT-42313
WT-42413

CAUTION:
Before servicing this chassis, it is important that the service person read the "SAFETY PRECAUTIONS" and "PRODUCT SAFETY NOTICE" in Part 1 of this manual.

PART 2
SCHEMATIC DIAGRAMS

CONTENTS **Page**

Schematic Diagrams

Overall PCB Block Diagram 1
PCB-POWER 2
PCB-MAIN 3
PCB-TERMINAL-1 (A/V Switch & Decoders) 4
PCB-TERMINAL-2 (3DYC) 5
PCBs - CRTs / PRE-AMP /CONTROL / SVM / DBF 6
PCB-SIGNAL-1 (AV I/O) 7
PCB-SIGNAL-2 (MICRO) 8
PCB-SIGNAL-3 (Video/Chroma 9
PCB-SIGNAL-4 (Convergence Generator) 10
PCB-UNI 11
PCB-DOUBLER-1 (Input) 12
PCB-DOUBLER-2 (Main) 13
PCB-DOUBLER-3 (Output) 14

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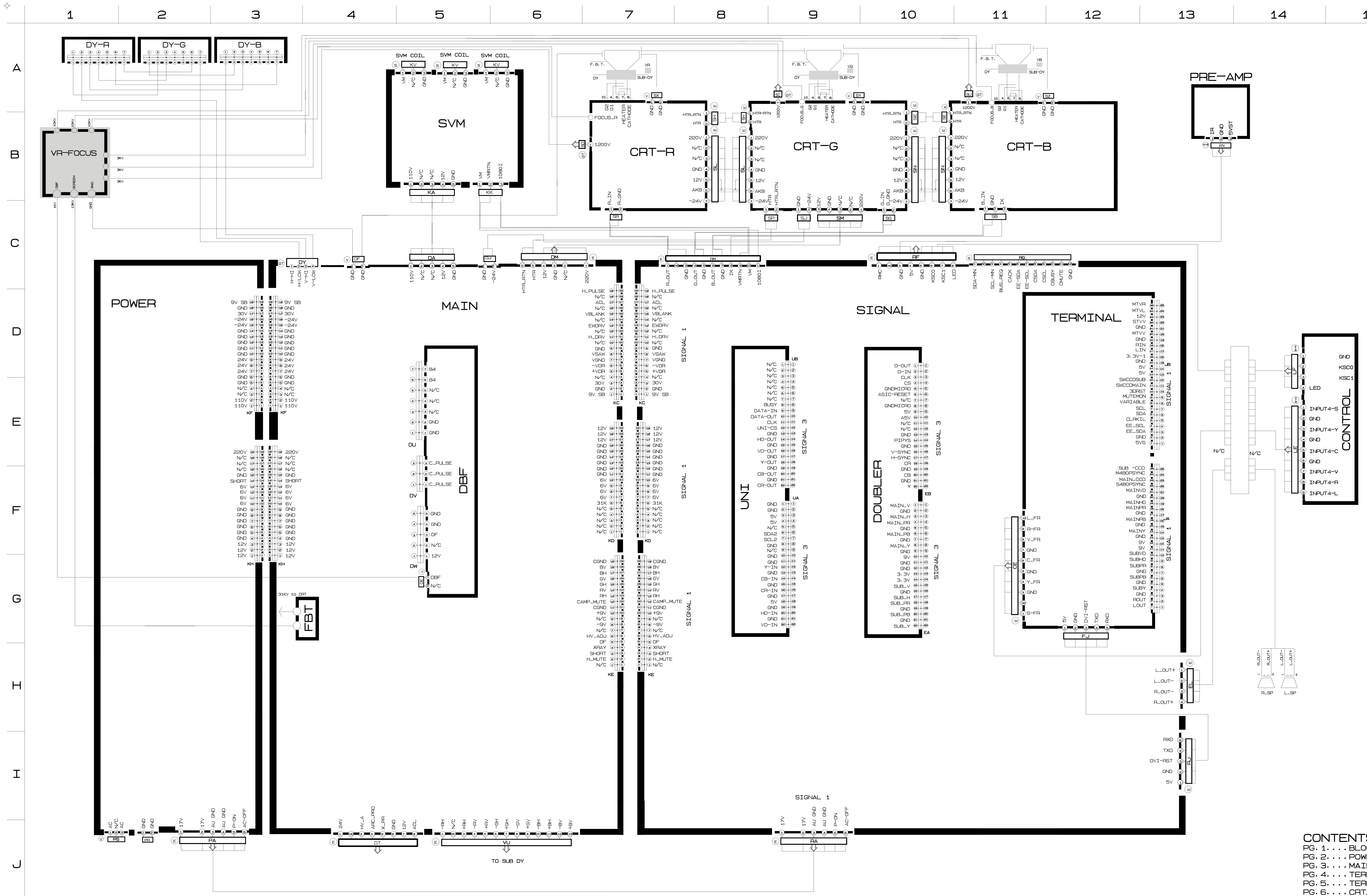

* NOTES

1. DC voltages were measured from points indicated to the circuit ground with a high-Z voltmeter
2. Wave form were taken with standard color bar signal.
3. TP13.etc. show test points.
4. CAPACITOR

Value	Not indicated		PF, for numbers more than 1 uF, for numbers less than 1
Dielectric strength	Not indicated : 50V		
Tolerance	Not indicated = +/- 10%		No tolerance is indicated for electrolytic capacitor and +/- 20%
	G=+/-2% J=+/-5% K=+/-10% M=+/-20%	P=+100% -0% Z=+80% -20%	Q=+30% -10% T=+200% -0% C=+/-0.25PF D=+/-0.5PF F=+/-1PF D=+/-2PF
Type	I	Parts except for chips	Not indicated : Ceramic capacitor MF : Polyester capacitor PP : Polypropylene film capacitor ALM : Aluminus electrolytic capacitor TF : Twin film capacitor SC : Semiconductor Ceramic capacitor MP : Metalized paper MPP : Metalized plastic film capacitor MMF : Metalized polyester capacitor MF, PP : Polyester polypropylene film capacitor PS : Styrol capacitor TAN or TANT : Tantalum capacitor +‖ : Electrolytic capacitor NP : Non polarized electrolytic capacitor
	II	chips	Not indicatedCeramic capacitor chip +‖ : Electrolytic capacitor NP : Non polarized electrolytic capacitor chip
Characteristic (Only ceramic capacitor)	Not indicated : F or B (high dielrctric percentage) CH, SL, etc. : Temperature compensaing types		

5. RESITOR

Value	Not indicated = Ohm K = 1,000 Ohm M = 1,000,000 Ohm	
Wattage	Parts except for chips	Not indicated = 1/4W or 1/6W
	Chips	Not indicated = 1/10W
Toler ance	Not indicated = +/-5% D = +/-0.5% J = +/-5% F = +/-1% K = +/-10%	
Type	I Parts except for chips	Not indicated : Carbon resistor S : Fixed composition resistor MB : Metal oxide film resistor(Type B) CE : Cemented resistor W : Wire wound resistor M : Metal film resistor MP : Metal plate cement resistor ML : Metal liner resistor
	II chips	Not indicated : chip resistor

6. This is a basic schematic diagram. Some sets may be subject to modification according to engineering improvement

SHADED COMPONENTS HAVE SPECIAL CHARACTERISTICS IMPORTANT TO SAFETY. BEFORE REPLACING ANY OF THESE COMPONENTS, READ CAREFULLY THE PRODUCT SAFETY NOTICE IN THE SERVICE MANUAL. DON' T DEGRADE THE SAFETY OF THE RECEIVERS THROUGH IMPROPER SERVICING.

SERVICE TECHNICIAN WARNING:

X-RADIATION PRECAUTION

THIS PRODUCT INCLUES CRITICAL ELECTRICAL AND MECHANICAL PARTS ESSENTIAL FOR X-RADIATION PRORECTION

TO AVOID POSSIBLE TO X-RADIATION TAKE RADIATION PROTECTIVE MEASURE FOR PERSONNEL DURING SERVICING.

SEE SERVICE INSTRUCTION FOR SPECIFIED REPLACEMENT PARTS AND SERVICE ADJUSTMENTS.

CONTENTS

PG. 1....BLOCK DIAGRAM
PG. 2....POWER
PG. 3....MAIN
PG. 4....TERMINAL-1 SW&DECODER
PG. 5....TERMINAL-2 3DYC
PG. 6....CRT/PRE-AMP/CONTROL/SVM/DBF
PG. 7....SIGNAL-1 AV I/O
PG. 8....SIGNAL-2 MICRO
PG. 9....SIGNAL-3 VIDEO CHROMA
PG. 10...SIGNAL-4 CONV GEN
PG. 11...UNI
PG. 12...DOUBLER-1 - IN
PG. 13...DOUBLER-2 - MAIN
PG. 14...DOUBLER-3 - OUT

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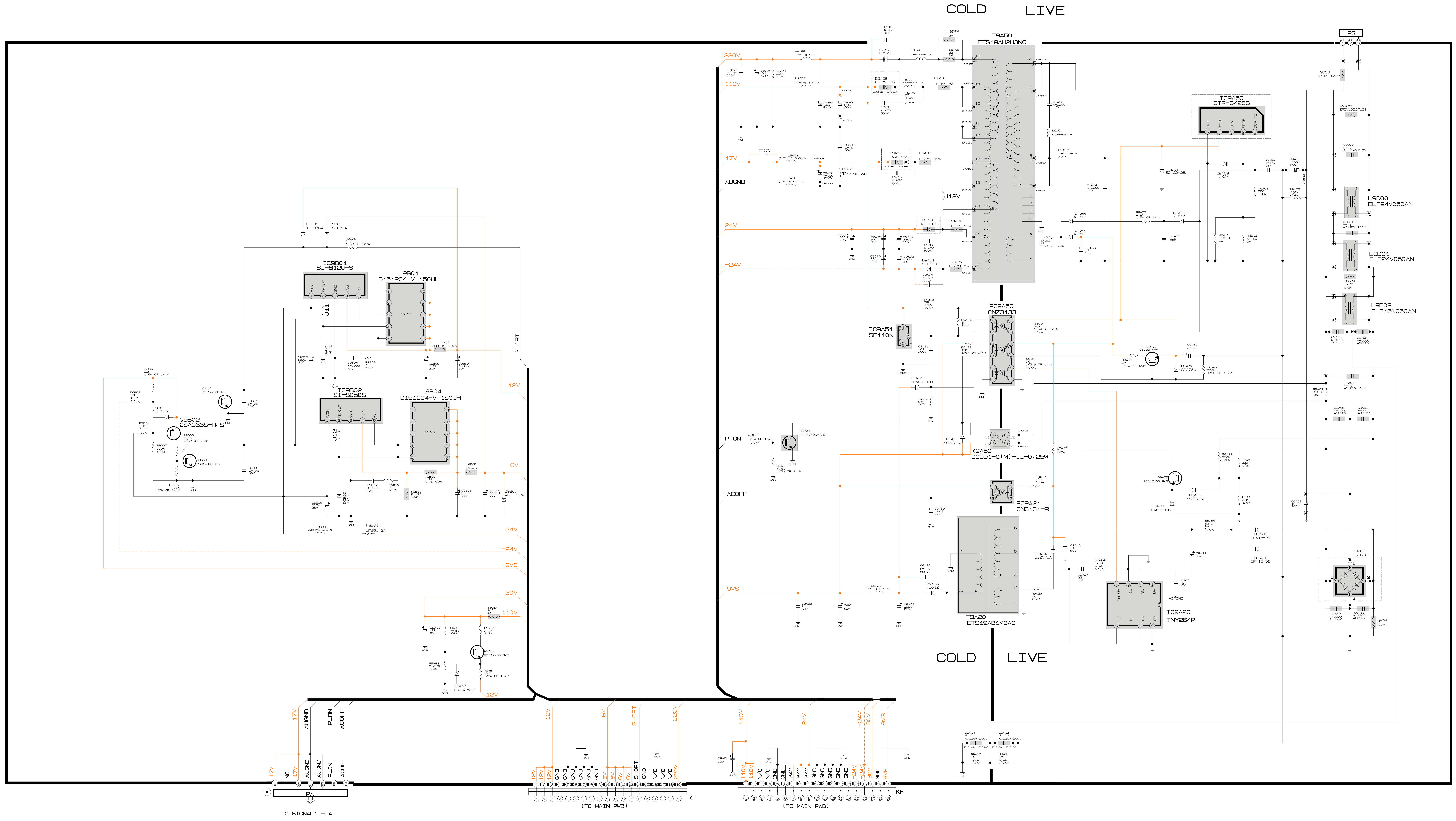
WT-42413


COLD
LIVE
T9A50
ETS49AH2U3NC
IC9A50
STR-6428S
PS
L9000
ELF24V050AN
L9001
ELF24V050AN
L9002
ELF15N050AN
220V
110V
17V
AUGND
J12V
24V
-24V
IC9B01
SI-8120-S
L9B01
D1512C4-V 150UH
J11
IC9B02
SI-8050S
L9B04
D1512C4-V 150UH
J12
Q9B02
2SA933S-R, S
SHORT
12V
6V
24V
-24V
9VS
30V
110V
PC9A50
CNZ3133
IC9A51
SE110N
P_ON
K9A50
DG9D1-0(M)-II-0.25W
ACOFF
PC9A21
ON3131-R
9VS
T9A20
ETS19AB1M3AG
IC9A20
TNY264P
COLD
LIVE
17V
AUGND
P_ON
ACOFF
12V
6V
SHORT
220V
110V
24V
-24V
30V
9VS
PA
TO SIGNAL1 -PA
KH
(TO MAIN PWB)
KF
(TO MAIN PWB)

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PG. 1. . . . BLOCK DIAGRAM
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PG. 7. . . . SIGNAL-1 AV I/O
PG. 8. . . . SIGNAL-2 MICRO
PG. 9. . . . SIGNAL-3 VIDEO CHROMA
PG. 10. . . SIGNAL-4 CONV GEN
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PG. 12. . . DOUBLER-1 - IN
PG. 13. . . DOUBLER-2 - MAIN
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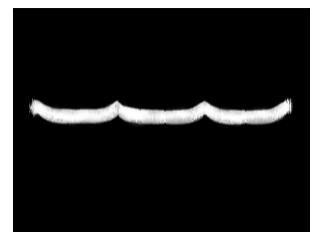
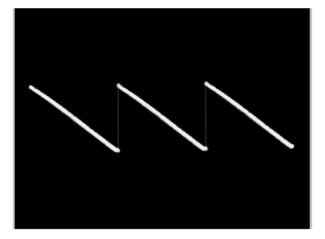
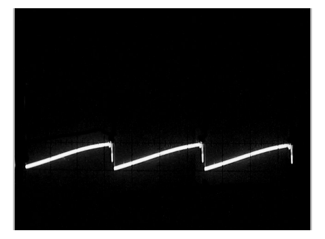
TO SIGNAL 1
KC
TO SIGNAL 1
KD
TO SIGNAL 1
KE
TO YOKE
T5A31
TRANS-HORZ
Q5A02
2SA1371-E
Q5A31
2SC5778
T5A32
ETH22K11AZ
Q5A32
2SK2774-01
Q5A40
2SA933S-R, S
Q5A39
2SA933S-R, S
Q5A05
2SA933S-R, S
Q5A06
2SA933S-R, S
Q5A10
2SA933S-R, S
IC5A05
NJM431L
IC8C02
STK394-250
IC8C01
STK394-250
IC4801
TDA8177
PWB-DBF
TO SVM
TO CRT PWB
TO FOCUS_VR
T5A51
MSU1AUR002
FOCUS
HV
Q5A51
2SK2771-01R
Q5A20
2SA933S-R, S
IC5A00
MSPA0401
IC5A02
UPC339C/LM339N
IC5A01
NJM2119D
IC5A03
LM4040BIZ
TP1
TP2
XRAY
HV_A
HV_ADJ
HV_A
ARC_PRO
X_PRO
ACL
HTR
HTR_RTN
GND
110V
12V
24V
220V
10V
H_PULSE
EXDRV
H_MUTE
VBLANK
HVSYNC
HVOUT_D
CAMP_MUTE
ET8C01
VU
TO SUB_DY
KF
TO POWER
KH
TO POWER



① 2.5Vp-p(H)



② 2Vp-p(V)



③ 1Vp-p(V)

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PG. 3. . . . MAIN
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PG. 6. . . . CRT/PRE-AMP/CONTROL/SVM/DBF
PG. 7. . . . SIGNAL-1 AV I/O
PG. 8. . . . SIGNAL-2 MICRO
PG. 9. . . . SIGNAL-3 VIDEO CHROMA
PG. 10. . . SIGNAL-4 CONV GEN
PG. 11. . . UNI
PG. 12. . . DOUBLER-1 - IN
PG. 13. . . DOUBLER-2 - MAIN
PG. 14. . . DOUBLER-3 - OUT

AV-SW
FRONT INPUT
IC2K00 CXA2069Q
J2001 DVI-CONNECTOR
IC2S01 CM1208-08MS
IC2000 SII907B
IC2D01 24LCS22AT/SN
IC2002 IRF7313
IC2003 BA033FP
J2C01 9P-DSUB-R
IC2C00 SP232ECN
IC2C01 TC7SET08F
TO SIGNAL-PWB
IC3K00 NJM2520M
IC3K01 NJM2520M
PJ2J00
INPUT2
INPUT1
PJ2J01
PJ2J02
DVD
PJ2J03
DTV
PJ2J05 MONITOROUTPUT
IC2N00 CXA2171Q MAIN COMPONENT SWITCH
IC2N01 TC7SET08F
IC2S00 CXA2151Q SUB COMPONENT SWITCH
MAINCOMP-SW
SUBCOMP-SW
IC2K02 m24c64wmn6t
TO SIGNAL1
TO SIGNAL1
TERMINAL_2

CONTENTS

PG. 1....BLOCK DIAGRAM
PG. 2....POWER
PG. 3....MAIN
PG. 4....TERMINAL-1 SW&DECODER
PG. 5....TERMINAL-2 3DYC
PG. 6....CRT/PRE-AMP/CONTROL/SVM/DBF
PG. 7....SIGNAL-1 AV I/O
PG. 8....SIGNAL-2 MICRO
PG. 9....SIGNAL-3 VIDEO CHROMA
PG. 10...SIGNAL-4 CONV GEN
PG. 11...UNI
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I
J
K
MAINYOUT_2
SMTINV
SUBYOUT
MAINHDOUT
MAINVDOUT
SUBHDOUT
SUBVDOUT
SWCCDSUB
SWCCDMAIN
S480PSYNC
M480PSYNC
MAINSELV
MAINSELH
SUBSELH
SUBSELV
MAINCCD
SUBCCD
IC2P00
TC74HC4053AFT
IC2P01
TC74HC4053AFT
IC2M01
LM1881M
3DINVY
Y_SIGNAL
3DINC
C_SIGNAL
3DYC
IC2M00
upd64082
A3.3V
D3.3V
msm54v16258b/bsl
FREERUN
IC2L00
CXA2019Q
MAIN DECODER
MAINMATRIX
CR_SIGNAL
CB_SIGNAL
Y_SIGNAL
MMTOUTCR
MMTOUTCB
MMTOUTY
SYNC_SIGNAL
MMTOUTHD
IC2L01
LM1881M
CLPSW
3DRST
CLKIL
SDA
SCL
3.3V
9V
5V
IC2LA0
CXA2019Q
SUB DECODER
SUBMATRIX
SMTOUTCR
SMTOUTCB
SMTOUTY
SMTOUTHD
IC2LA1
LM1881M

CONTENTS

PG. 1....BLOCK DIAGRAM
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PG. 3....MAIN
PG. 4....TERMINAL-1 SW&DECODER
PG. 5....TERMINAL-2 3DYC
PG. 6....CRT/PRE-AMP/CONTROL/SVM/DBF
PG. 7....SIGNAL-1 AV I/O
PG. 8....SIGNAL-2 MICRO
PG. 9....SIGNAL-3 VIDEO CHROMA
PG. 10...SIGNAL-4 CONV GEN
PG. 11...UNI
PG. 12...DOUBLER-1 - IN
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PWB-PREAMP
PWB-SIGNAL
RF
PWB-CRT (R)
IC6R01 TDA6120Q
R-SCREEN
SOCKET_R
R-FOCUS
COATING-EARTH
PWB-CONTROL
PJ2J11
PWB-CRT (G)
IC6G01 TDA6120Q
PWB-MAIN
DP
G-SCREEN
SOCKET_G
G-FOCUS
COATING-EARTH
PWB-SVM
Q5H11 2SA1535-R
Q5H12 2SC3944-R
PWB-DBF
PWB-CRT (B)
IC6B01 TDA6120Q
B-SCREEN
SOCKET_B
B-FOCUS
COATING-EARTH
Q6B02 2SA1115-E,F /2SA933S-R,S

CONTENTS
PG. 1....BLOCK DIAGRAM
PG. 2....POWER
PG. 3....MAIN
PG. 4....TERMINAL–1 SW&DECODER
PG. 5....TERMINAL–2 3DYC
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PG. 9....SIGNAL–3 VIDEO CHROMA
PG. 10...SIGNAL–4 CONV GEN
PG. 11...UNI
PG. 12...DOUBLER–1 – IN
PG. 13...DOUBLER–2 – MAIN
PG. 14...DOUBLER–3 – OUT

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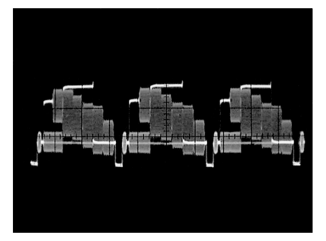
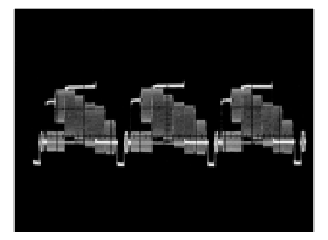
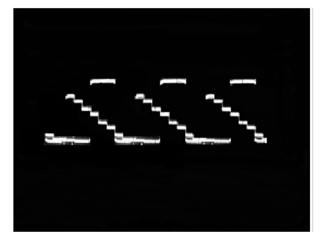
TO MICRO
IC3E01
LA4663
TO VC
TU1A01
115-V-F045AP
TU1B01
115-V-F025AP
RF SWITCH
ANT SEL SEL RF PATH
Q7S02
2SA1037K-R. S
Q1A21
2SA1037K-R. S
Q1A30
2SA1037K-R. S
Q1A32
2SA1037K-R. S
Q1B30
2SA1037K-R. S
Q1B32
2SA1037K-R. S
Q1B21
2SA1037K-R. S
IC9C31
BA033FP
IC9C01
NJM7809FA/AN7809F
IC9C21
BA05FP
IC9C41
BA033FP
IC9C11
BA17809FP
IC3A01
MSP3445G
Q3A29
2SA1037K-R. S
Q3A28
2SA1037K-R. S
Q3A21
2SA1037K-R. S
Q3A20
2SA1037K-R. S
TO PCB-POWER
PA
TO PCB-MAIN
KC
KD
KE
JA
JB
TO PWB-TERMINAL
TO CONV-GENE



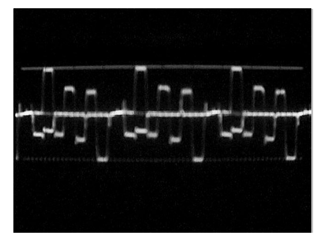
① 1Vp-p(H)



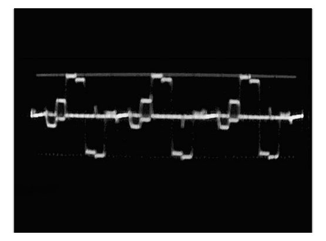
② 1Vp-p(H)



③ 0.7Vp-p(H)



④ 0.7Vp-p(H)



⑤ 0.7Vp-p(H)

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PG. 8. . . . SIGNAL-2 MICRO
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PG. 10. . . SIGNAL-4 CONV GEN
PG. 11. . . UNI
PG. 12. . . DOUBLER-1 - IN
PG. 13. . . DOUBLER-2 - MAIN
PG. 14. . . DOUBLER-3 - OUT

TO CONV-GENE
TO AVIO
PWB-TERMINAL FJ
ALIGNMENT TEST CONNECTOR
RJ
RG
IC7C01
m24c64wmn6t
IC7A00
M306V2ME-XXXFP
Item2 ONLY
TP-SHORT
TP-5VST
PRE-AMP/CONTROL
Q7C20
2SA1037K-R. S
R8P01 220-J (Item1)
R8P01 470-J (Item2)
IC7C10
MAX823R
IC7V01
Z86130
5V
TO AVIO
TO VC
TO AVIO

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PG. 1. . . . BLOCK DIAGRAM
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PG. 4. . . . TERMINAL-1 SW&DECODER
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PG. 6. . . . CRT/PRE-AMP/CONTROL/SVM/DBF
PG. 7. . . . SIGNAL-1 AV I/O
PG. 8. . . . SIGNAL-2 MICRO
PG. 9. . . . SIGNAL-3 VIDEO CHROMA
PG. 10. . . SIGNAL-4 CONV GEN
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PG. 12. . . DOUBLER-1 - IN
PG. 13. . . DOUBLER-2 - MAIN
PG. 14. . . DOUBLER-3 - OUT

PWB-UNI
UA
UB
PWB-CRT
Q2W51 2SA1037K-Q
Q2W50 2SC2413K-Q
Q2W52 2SA1037K-Q
Q2W61 2SA1037K-Q
Q2W60 2SC2413K-Q
Q2W62 2SA1037K-Q
Q2W71 2SA1037K-Q
Q2W70 2SC2413K-Q
Q2W72 2SA1037K-Q
Q2Y11 2SA1037K-Q
IC2Y01 TDA8601TD
Q2X30 2SA1037K-Q
Q2X40 2SA1037K-Q
Q2X50 2SA1037K-Q
Q2Y01 2SA1037K-Q
Q2Y02 2SA1037K-Q
Q2Y03 2SA1037K-Q
IC2Y50 NJM78M05FA
CXA2180Q
IC2V00
CF2V01 CSALA2M69G4ZF01-B0 2.69MHZ
Q2V14 2SA1037K-R, S
Q2W10 2SA1252-5, 6
Q2W11 2SA1252-5, 6
Q2W08 2SA1252-5, 6
Q2W07 2SA1252-5, 6
Q2W04 2SA1252-5, 6
Q2W05 2SA1252-5, 6
VBLANK
BLK-CRT
TO AVIO
MAIN_V
MAIN_H
MAIN_PR
MAIN_PB
MAIN_Y
SUB_V
SUB_H
SUB_PR
SUB_PB
SUB_Y
EA
EB
TO DOUBLER
TO DOUBLER
TO MICRO
TO CONV-GENE
TO AVIO
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PG. 10...SIGNAL-4 CONV GEN
PG. 11...UNI
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IC8D00
cm0022af
275P595-11
CONVERGENCE GENERATOR
IC8D01
M24C32MN6T
IC8E03
CD0031AM
IC8E00
TL084CD
IC8E01
TL084CD
IC8E02
TL084CD
C-WC
C-SCL
C-SDA
3.3V
5V
9V
-9V
GH
BH
RH
BV
RV
GV
GND
C_RESET
C_ACK
C_BUSY
C_E2RESET
C_MUTE
C_SDA
C_SCL
TO MICRO
V_PULSE
C_OSDR
C_OSDG
C_OSDB
C_BLK
TO VC
CAMP_MUTE
HV_ADJ
3.3V-1
H_PULSE1
5V
+9V
C_GND
-9V
DF
BV
GV
RV
BH
GH
RH
TO AVIO

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PG. 1....BLOCK DIAGRAM
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PG.6....CRT/PRE-AMP/CONTROL/SVM/DBF
PG.7....SIGNAL-1 AV I/O
PG.8....SIGNAL-2 MICRO
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PG.10...SIGNAL-4 CONV GEN
PG.11...UNI
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PG.14...DOUBLER-3 - OUT

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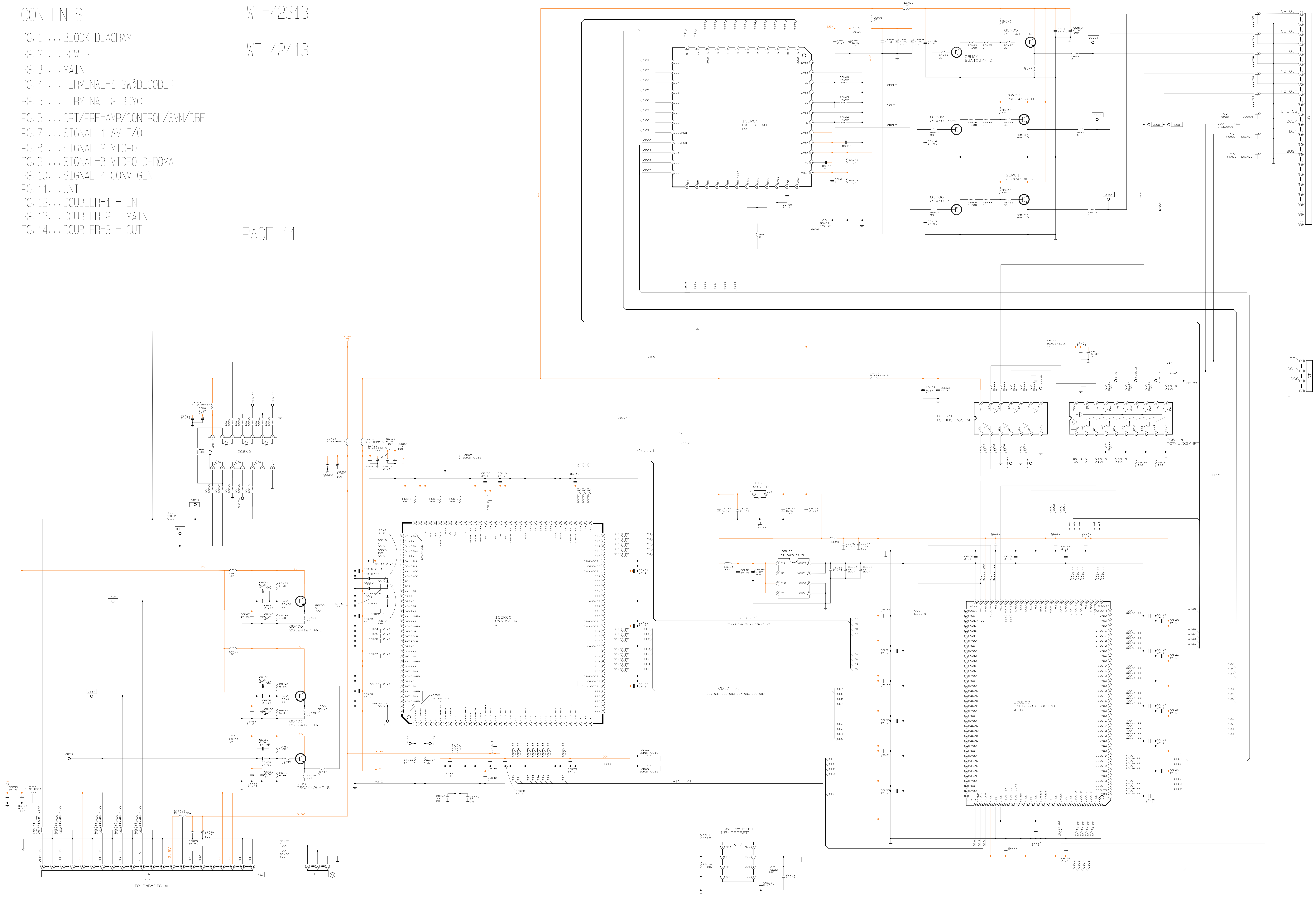

IC6M00
CXD2309AQ
DAC
Q6M05 2SC2413K-Q
Q6M04 2SA1037K-Q
Q6M03 2SC2413K-Q
Q6M02 2SA1037K-Q
Q6M01 2SC2413K-Q
Q6M00 2SA1037K-Q
CBOUT
YOUT
CROUT
VDOUT
HDOUT
CR-OUT
CB-OUT
Y-OUT
VD-OUT
HD-OUT
UNI-CS
DCLK
DIN
BUSY
UB
IC6L21
TC74HCT7007AF
IC6L24
TC74LVX244FT
DIN
DCLK
DCS
CT
IC6K04
IC6L23
BA033FP
IC6K00
CXA3506R
ADC
IC6L00
S1L60283F30C100
ASIC
IC6L26-RESET
M51957BFP
Y[0..7]
CB[0..7]
CR[0..7]
YIN
CBIN
CRIN
HDIN
VDIN
Q6K00 2SC2412K-R, S
Q6K01 2SC2412K-R, S
Q6K02 2SC2412K-R, S
VD-IN
HD-IN
CR-IN
CB-IN
Y-IN
3.3V
SCL
SDA
5V
GND
UA
TO PWB-SIGNAL
I2C

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I
J
K
PCB SIGNAL-3
EA
PCB SIGNAL-3
EB
DOUBLER-3
IC7D00
TC74HC4066AFT
IC7D01
ADS931E
IC7D02
ADS931E
IC7D03
ADS931E
IC7D11
TC74AC157FT
IC7D10
TC74AC157FT
IC7E00
TC74HC4066AFT
IC7E01
ADS931E
IC7E02
ADS931E
IC7E03
ADS931E
IC7E11
TC74AC157FT
IC7E10
TC74AC157FT
LF7D00
LF7D01
LF7D02
LF7E00
LF7E01
LF7E02
Q7D05
2SC2413K-Q
Q7D00
2SC2413K-Q
Q7D04
2SA1037K-Q
Q7D02
2SA1037K-Q
Q7D15
2SC2413K-Q
Q7D10
2SC2413K-Q
Q7D11
2SA1037K-Q
Q7D12
2SA1037K-Q
Q7D25
2SC2413K-Q
Q7D20
2SC2413K-Q
Q7D21
2SA1037K-Q
Q7D22
2SA1037K-Q
Q7E05
2SC2413K-Q
Q7E00
2SC2413K-Q
Q7E01
2SA1037K-Q
Q7E02
2SA1037K-Q
Q7E15
2SC2413K-Q
Q7E10
2SC2413K-Q
Q7E11
2SA1037K-Q
Q7E12
2SA1037K-Q
Q7E25
2SC2413K-Q
Q7E20
2SC2413K-Q
Q7E21
2SA1037K-Q
Q7E22
2SA1037K-Q
MAIN-Y
MAIN-CB
MAIN-CR
SUB-Y
SUB-CB
SUB-CR
M-Y
M-CB
M-CR
M-CLAMP
S-Y
S-CB
S-CR
S-CLAMP
M-ADC
S-ADC
M-MPX
S-MPX
MADCCLK
MCLP
SADCCLK
SMPXCLK
SCLP
MMPXCLK
A5V
D3.3V
HDOUT
VDOUT
YSOUT
RESET

* EXCEPT WHERE NOTED, ALL OPEN-ENDED CIRCUIT PATHS CONNECT TO THE DOUBLER-2 SCHEMATIC

CONTENTS

PG. 1....BLOCK DIAGRAM
PG. 2....POWER
PG. 3....MAIN
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PG. 13...DOUBLER-2 - MAIN
PG. 14...DOUBLER-3 - OUT

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IC7H00
UPD8500XAGD
IC7H02
UPD4516161AG5-A10-9NF
SDRAM-A
IC7H03
UPD4516161AG5-A10-9NF
SDRAM-B
IC7H04
TLC2932IPW
Main-PLL
IC7H05
TLC2932IPW
Sub-PLL
IC7H06
TC74HCT7007AF
3.3V to 5V Buffer
IC7H07
TC74LVX244FT
5V to 3.3V Buffer
IC7H08
TC74HCT7007AF
3.3V to 5V buffer
IC7H09
TC74LVX14FT
IC7H10
TC74LVX14FT
IC7H01
SI-3025LSX-TL
X7H00
DOUBLER-3
DOUBLER-3
D3.3V
RESET
DCS
DIN
SCLK
DOUT

* EXCEPT WHERE NOTED, ALL OPEN-ENDED CIRCUIT PATHS CONNECT TO THE DOUBLER-1 SCHEMATIC

CONTENTS

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1
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A
B
C
D
E
F
G
Y00
Y01
Y02
Y03
Y04
Y05
Y06
Y07
CB00
CB01
CB02
CB03
CB04
CB05
CB06
CB07
CR00 AB35
CR01 AB34
CR02 AA34
CR03 P35
CR04 P34
CR05 N34
CR06 M35
CR07 M34
DACCLK AC35
R7G67 22 1/16W
R7G68 22 1/16W
R7G69 22 1/16W
R7G77 22 1/16W
R7G78 22 1/16W
R7G79 22 1/16W
R7G99 22 1/16W
R7G98 22 1/16W
R7G96 22 1/16W
R7G95 22 1/16W
R7G94 22 1/16W
R7G93 22 1/16W
R7G92 22 1/16W
R7G91 22 1/16W
R7G90 22 1/16W
R7G89 22 1/16W
R7G88 22 1/16W
R7G87 22 1/16W
R7G86 22 1/16W
R7G85 22 1/16W
R7G84 22 1/16W
R7G83 22 1/16W
R7G82 22 1/16W
R7G81 22 1/16W
R7G80 22 1/16W
IC7G01
MB40C958VPFV
8bit 3ch DAC
G0 R7 R6 R5 R4 R3 R2 R1 R0 RVB RIREF RVRIN
G1 G2 G3 G4 G5 G6 G7 B0 B1 B2 B3 B4
B5 B6 B7 RCLK GCLK BCLK DVSS VA BVB BIREF BVRIN VROUT
DVDD CE AVDD1 ROUT AVSS1 GOUT AVSS0 BOUT AVDD0 GIREF GVB GVRIN
C7G35 16V K-.1
R7G73 F-3.3K 1/16W
C7G36 Z-.01
R7G74 F-3.3K 1/16W
C7G37 16V K-.1
C7G39 16V K-.1
C7G38 16V K-.1
R7G75 F-3.3K 1/16W
D5V
C7G33 Z-.01
L7G11 10MH-K
C7G34 6.3V 47µ 105°C
Y3
CB3
CR3
C7G32 Z-.01
C7G44 6.3V 100µ 105°C
C7G31 6.3V 100µ 105°C
R7G72 F-240 1/16W
R7G71 F-240 1/16W
R7G70 F-240 1/16W
C7G30 Z-.01
L7G10 100MH-K
A5V
9V
L7G00 100MH-K
C7G01 Z-.01
C7G02 47µ 16V
C7G13 22µ 6.3V 105°C
R7G01 12K 1/16W
R7G02 100 1/16W
R7G05 10K 1/16W
C7G11 Z-.01
Q7G00 2SC2412K-Q
R7G03 1K 1/16W
R7G04 330 1/16W
LF7G00
R7G09 330 1/16W
C7G12 Z-.01
R7G10 100 1/16W
R7G11 1K
Q7G02 2SA1037K-Q
R7G12 0 1/16W
Y-OUT
C7G03 22µ 6.3V 105°C
R7G21 12K 1/16W
R7G22 100 1/16W
R7G25 10K 1/16W
C7G21 Z-.01
Q7G05 2SC2412K-Q
R7G23 1K 1/16W
R7G24 330 1/16W
LF7G01
R7G29 330 1/16W
C7G22 Z-.01
R7G30 100 1/16W
R7G31 1K
Q7G07 2SA1037K-Q
R7G32 0 1/16W
CB-OUT
C7G43 22µ 6.3V 105°C
R7G41 12K 1/16W
R7G42 100 1/16W
R7G45 10K 1/16W
C7G23 Z-.01
Q7G12 2SC2412K-Q
R7G43 1K 1/16W
R7G44 330 1/16W
LF7G02
R7G49 330 1/16W
C7G24 Z-.01
R7G50 100 1/16W
R7G51 1K
Q7G10 2SA1037K-Q
R7G52 0 1/16W
CR-OUT
A9V
YOUT
A5V
CBOUT
CROUT
D5V
DOUBLER-1

* EXCEPT WHERE NOTED, ALL OPEN-ENDED CIRCUIT PATHS CONNECT TO THE DOUBLER-2 SCHEMATIC

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